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RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

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Quality Appraisal and Risk of Bias Assessment

A risk of bias assessment was performed for each study using the following criteria: (1) Was the selection of patients for inclusion in the study unbiased? (2) Was there systematic exclusion of any single group? (3) Was there significant attrition rate of study participants? (4) Was there a clear description of methodology and techniques in the study? (5) Was there unbiased and accurate assessment of outcomes and complications in the study? (6) Were potential confounding variables and risk factors identified and examined using acceptable statistical techniques? (7) Was the duration of follow-up reasonable for investigated outcomes? (8) Was the population included in the study described adequately? (9) Was the included participant group similar to the population at large that is affected by the condition studied? (10) Were the inclusion and exclusion criteria clearly defined? (11) Was the funding source and role of funder clearly defined in the study? (12) Were there any conflicts of interest identified or easily apparent? Only studies meeting at least ten of the twelve quality criteria above were included for analysis.

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Table 1A: Study design and results for all included studies

Author	Study Design (Level of Evidence)	Study Question	Demographics	Study Methods	Study Results
Adelani MA, Archer KR, Song Y, et al	Retrospec tive cohort study (3)	Determine if there is an association between black race and adverse outcome when medical conditions were adjusted for after TJA	The patient population consisted of 585,269 patients—206,570 patients (35%) who had undergone total hip arthroplasties and 378,699 (65%) who had total knee arthroplasties. The average age was 67 years. Women comprised 61% of the patient population. Ninety-three percent of patients were white, and seven percent were Black. Hypertension was the most common medical comorbidity, affecting 54% of the total patient population.	Data on 585,269 patients from the Nationwide Inpatient Samples were assessed by multivariable logistic regression analysis. Available data from 1998 through 2005 was analyzed. The outcomes of interest in this study were inhospital postoperative complications and mortality.	Black patients were more likely to have both hypertension and diabetes than whites (P < 0.0001). Obesity was nearly twice as prevalent among Black patients compared to whites (P < 0.0001). Black patients were more likely to have Medicaid insurance coverage than whites, more likely to be treated in a teaching hospital, and more likely to be treated in hospitals with significantly lower annual case volumes (P < 0.0001 each). Multivariable logistic regression analysis demonstrated a significant association between Black race and

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T1 ' '.	1: .: 0
The majority	complication after
of patients	arthroplasty [OR
(88%) were	1.20, 95% CI
treated in an	1.07–1.35].
urban hospital;	Obesity [OR
approximately	1.23, 95% CI
41% were	1.11–1.37] and
treated in	treatment in a
teaching	teaching hospital
hospitals.	[OR 1.45, 95% CI
	1.23–1.71] were
	also associated
	with
	postoperative
	complication.
	Female patients
	were slightly less
	likely to have
	complications
	[OR 0.94, 95% CI
	0.88-1.00], as
	were those with
	hypertension [OR
	0.91, 95% CI
	0.86–0.96]. Black
	race also had a
	significant
	association with
	death [OR 1.65,
	95% CI 1.33–
	2.05]. Medicaid
	insurance [OR
	1.97, 95% CI
	1.49–2.59],
	diabetes [OR
	1.37, 95% CI
	1.16–1.62] and
	treatment in a
	teaching hospital
	[OR 1.17, 95% CI
	1.02–1.35], and
	treatment in an
	urban hospital
	aroan nospitai

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		[OR 1.38, 95% CI
		1.13–1.68] were
		also associated
		with
		postoperative
		mortality. Female
		gender [OR 0.56,
		95% CI 0.50–
		0.63] and
		hypertension [OR
		0.45, 95% CI
		0.39–0.50] were
		both negatively
		associated with
		death after joint
		arthroplasty. This
		showed that when
		hypertension,
		diabetes, and
		obesity were
		accounted for,
		Black race
		remained
		associated with
		both
		postoperative
		complications and
		mortality.

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Adelani	Retrospec	The purpose	A total of	Data was	Race/ethnicity
MA,	tive	of this study	340,577	analyzed from	was not
Keller	cohort	is to evaluate	patients were	the Healthcare	associated with
MR,	study (3)	the impact of	included in the	Cost and	readmission
Barrack		hospital	study, 27,206	Utilization	following THA.
RL, et al		volume on	of which were	Project State	African American
		racial	African	Inpatient	race was
		differences in	American and	Databases for	associated with
		outcomes	23,589 of	patients who	readmission
		following	which were	underwent	following TKA
		total joint	Hispanic.	TJA between	(relative risk
		arthroplasty	Mean age was	2006 and	[RR] 1.16).
		(TJA).	67.5 years old,	20013 in New	African American
			63.9% were	York and	race was
			female, and	Florida.	associated with
			20% were of	Complications	ED visits
			low	,	following THA
			socioeconomic	readmissions,	(RR 1.29) and
			status.	and	TKA (RR 1.33).
				emergency	Hispanic ethnicity
				department	was associated
				(ED) visits	with ED visits
				within 90	following TKA
				days of	(RR 1.15), but not
				surgery were	THA. These
				compared by	associations did
				hospital	not change after
				volume to	adjusting for
				generate	hospital volume.
				relative risks.	

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Alley MC,	Prospectiv	The purpose	269 patients of	The survey	Of the patients for
Mason	e	of this study	a single	given was	which surgery
AS, Tybor	observatio	is to analyze	surgeon at a	designed to	
			single	evaluate the	was
DJ, et al	nal study	the disparities			recommended,
	(2)	in the	institution	following: e	76% of Caucasian
		utilization of	were surveyed	demographics	patients elected
		total joint	from October	, lifestyle,	for surgery versus
		arthroplasty	2012 to	socioeconomi	35% of Chinese
		(TJA)	February 2013.	c status	patients. Chinese
		specific to	Of the 269	(SES),	ethnicity was
		non-English	patients, 65	language,	shown to be a
		speaking	were Chinese.	culture, and	significant
		Chinese	85 of the	familiarity	predictor of
		patients in the	patients were	with surgery.	surgical decision
		US.	recommended	Recommendat	after controlling
			surgery, 26 of	ion for TJA	for age, gender,
			which were	was based on	socioeconomic
			Chinese.	the patient's	status, and
				physical	education
				limitations	(p<.05).
				and	
				limitations on	
				daily living as	
				a result	
				of	
				degenerative	
				joint disease	
				(DJD)	
				symptoms,	
				along with	
				radiographic	
				evidence. The	
				surgeon	
				graded the	
				symptom	
				severity at the	
				clinic visit	
				using 12-Item	
				Short-Form	
				Health Survey	
				scores and	
				Harris Hip	
				Scores (HHS)	

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Amen TB,	Retrospec	The purpose	A total of	or Knee Society Scores (KSS).	From 2006 to
Varady NH, Rajaee S, et al	tive cohort study (3)	of this study was to investigate trends in racial disparities in total joint arthroplasty (TJA) utilization and perioperative metrics between black and white patients in the United States (US) from 2006 to 2015.	5,442,646 patients who underwent elective primary total knee arthroplasty (TKA), and 2,644,193 patients underwent elective primary total hip arthroplasty (THA) were included in the study. 92% of patients were white and 8% of patients were black. Black patients undergoing	analyzed the National Inpatient Sample (NIS) database to identify black and white patients who underwent primary total knee arthroplasty (TKA) or primary total hip arthroplasty (THA) between 2006 to 2015. Utilization rates, length of stay in the hospital (LOS),	2015, there were persistent white-black disparities in standardized utilization rates and associated hospital length of stay (LOS) for both TKA and THA (p < 0.001 for all; Ptrend < 0.05 for all). There were also worsening disparities in the rates of discharge to a facility (rather than home) after both TKA (white compared with black: 40.3% compared with 47.2% in 2006

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	TKA and THA were more likely to be female, younger, and have a higher Elixhauser Comorbidity Index (ECI) than white patients (P < 0.001 for all). Black patients undergoing TKA and THA were also more likely to have a lower median household income, less likely to be insured by Medicare, more likely to be insured by Medicaid, and more likely to be treated in an urban teaching hospital (p < 0.001 for all).	discharge disposition, and inpatient complications and mortality were trended over time. Linear and logistic regression analyses were performed to assess changes in disparities over time.	and 25.7% compared with 34.2% in 2015, Ptrend < 0.001) and THA (white compared with black: 42.6% compared with 41.7% in 2006 and 23.4% compared with 29.2% in 2015, Ptrend < 0.001) and worsening disparities in complication rates after TKA (white compared with black: 5.1% compared 6.1% in 2006 and 3.9% compared with 6.0% in 2015, Ptrend < 0.001). When controlling for age, sex, smoking status, medical comorbidities, hospital characteristics, socioeconomic status, and insurance type, black race was associated with increased mortality (odds ratio [OR] = 1.49, 95% confidence interval [CI] =
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		complications
		(OR = 1.32, 95%)
		CI 1.27-1.37, P <
		0.001), discharge
		to a facility (OR
		= 1.65, 95% CI
		1.58-1.72, P <
		0.001), and
		longer LOS
		(adjusted mean
		difference [AMD]
		= 0.26  day, 95%
		CI 0.23-0.28 day,
		P < 0.001) for
		TKA. Similarly,
		for THA, black
		race was
		associated with
		increased
		mortality (OR =
		2.30, 95% CI
		1.73-3.06, p <
		0.001), total
		complications
		(OR = 1.39, 95%)
		CI 1.32-1.47, P <
		0.001), discharge
		to a facility (OR
		= 1.71, 95% CI
		1.63-1.80, P <
		0.001), and
		longer LOS
		(AMD = 0.30-
		day, 95% CI
		0.27-0.33-day, P
		< 0.001).

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Ang DC,	Retrospec	Do racial	684 potential	Primary	The mean overall
Tahir N,	tive	differences in	candidates for	outcome was	WOMAC score
Hanif H,	cohort	clinical	TJA were	clinical	was $56 \pm 14$ ,
et al	study (3)	appropriatene	included in the	appropriatene	suggesting
Ct ai	study (3)	ss for surgery	study, 62% of	ss for TJA	moderately severe
		exist in a	which were	consideration.	OA. There were
		sample of	white, 38% of	A validated	no significant
		primary care	which were	TJA	racial group
		clinic patients	African		differences (p=.3)
		with	American.	appropriatene	<b>4</b> /
		moderate to	78% had knee	ss algorithm	in the proportions
				was used to	of patients
		severe	osteoarthritis	derive an	deemed clinically
		symptomatic	(OA) and 22%	appropriatene	appropriate for
		hip or knee	had hip OA.	ss factor using	TJA.
		osteoarthritis	Mean age was	the following	
		?	64 years old.	variable: age	
				(50-70  or  > 70)	
				years),	
				Charlson	
				comorbidity	
				$(\le 1 \text{ or } > 1),$	
				Western	
				Ontario and	
				McMaster	
				Universities	
				OA Index	
				(WOMAC)	
				pain and	
				physical	
				function, and	
				adequacy of	
				previous	
				medical	
				management.	

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A	D atus ::: -	Tl	A 4-4-1 - F	Tl	Dia als maticuta
Arroyo	Retrospec	The purpose	A total of	The authors	Black patients
NS, White	tive	of this study	739,857	analyzed data	experienced
RS,	cohort	was to	patients who	from the State	higher 30-day
Gaber-	study (3)	examine	underwent	Inpatient	(Odds Ratio [OR]
Baylis		socioeconomi	elective TKA	Databases	= 1.20, 95%
LK, et al		c, racial and	and met	(SID) of the	Confidence
		ethnic	inclusion and	Healthcare	Interval [CI] =
		disparities	exclusion	Cost and	1.15–1.25) and
		among	criteria were	Utilization	90-day (OR =
		patients who	included	Project	1.08, 95% CI
		receive	within the	(HCUP) to	1.05–1.11)
		elective total	study. The	evaluate	readmissions
		knee	average age of	inpatient	when compared
		arthroplasty	the overall	discharge	to white patients.
		(TKA) within	patient	records from	Compared to
		the Medicare	population was	California,	patients with
		population.	67.31 years	Florida, New	private insurance,
			(standard	York, and	Medicaid and
			deviation [SD]	Maryland	Medicare patients
			10.10), with	from 2007 to	had a higher
			patients	2014.	likelihood of 30-
			readmitted at	Inclusion	day readmissions
			30- and 90-	criteria	(OR = 1.17, 95%)
			days being	included	CI 1.13-1.20 and
			slightly older	patients	OR = 1.23, 95%
			(69.23 years	greater than	CI 1.17-1.28),
			[SD 10.81] and	18 years of	with similar
			68.34 years	age who	results for 90
			[SD 10.85])	underwent	days ( $OR = 1.46$ ,
			Females	TKA surgery.	95% CI 1.38-1.54
			comprised	Patients were	and $OR = 1.58$ ,
			63.0% of the	excluded for	95% CI 1.46-
			overall	missing	1.71). When
			population,	demographic	compared to
			with 58.3% of	data, death	patients in the
			the 30-day	during the	lowest median
			readmitted	index	income quartile
			cohort, and	hospitalizatio	(first quartile),
			59.6% of the	n, insufficient	patients in the
			90-day	follow-up	higher median
			readmitted	time after	income quartiles
			cohort. White	initial	all had reduced
			patients	hospitalizatio	adjusted OR of
			patients	nospitalizatio	aujusieu OK 01

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comprised	n.	readmissions.
76.4% of the	Demographic	Patients treated in
overall	characteristics	hospitals with
population,	and medical	higher procedure
with 74.7% of	comorbidities	volumes (second,
the 30-day	were	third, and fourth
readmission	compared for	quartiles) had a
cohort, and	all patients	lower likelihood
75.6% of the	who	of readmission
90-day	underwent	compared to
readmission	TKA during	those treated at
cohort. Black	their initial	hospitals in the
patients overall	inpatient	lowest quartile
represented	hospitalizatio	for procedure
7.4% of the	n and at both	volume for white,
population,	30- and 90-	black, Hispanic,
with 9.5% of	day	and other
the 30-day	readmission	race/ethnicity,
readmissions	time points.	Medicare- and
cohort, and	Chi-square or	Medicaid-insured
8.9% of the	Fisher exact	patients continued
90-day	test analysis	to have higher
readmission	was used to	odds of
cohort.	test statistical	readmission. For
Medicare	significance	both 30 and 90-
patients	for categorical	day readmission,
represented	variables,	black patients
60.1% of the	including	continued to have
overall	insurance	increased odds of
population,	status,	readmission
with 68.8% of	readmission	following elective
the 30-day	rates,	TKA when
readmissions	readmission	compared to
cohort, and	diagnoses,	white patients.
66.0% the 90-	and	Black patients
day	demographic	with Medicare
readmissions	data.	and private
cohort.	Continuous	insurance had
Medicaid	variables were	higher 30-day
patients	compared	readmission rates
represented	using analysis	than white
3.1% of the	of variance or	patients with
overall	Kruskal-	Medicare and
Overan	1XI USKAI-	iviculcate and

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population and	Wallis tests	private insurance;
4.1% of both	for non-	Medicaid trended
30- and 90-day	normally	positive.
readmission	distributed	Diagnosis of
cohorts.	variables.	wound infection
Colloi ts.		
	Marginal	was the most
	logistic	common cause of
	regression	readmission for
	models were	the overall study
	used to	population and
	examine the	the number one
	effect of	reason for
	markers of	readmission
	racial and	among Medicaid
	seriocomic	patients.
	disparities on	Compared to
	readmissions.	private insurance
		patients,
		Medicaid (OR =
		1.22, 95% CI
		1.04–1.43 and
		OR = 1.32, 95%
		CI 1.15–1.51) and
		Medicare (OR =
		1.09, 95% CI
		1.00–1.19 and
		OR 1.17, 95% CI
		1.08–1.26)
		patients had
		increased odds of
		readmission for
		wound infection
		at 30 and 90 days,
		respectively.

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Aseltine	Retrospec	The purpose	A total of	The authors	The all-cause 30-
RH, Wang	tive	of this	83,887 patients	analyzed data	day readmission
W,	cohort	investigation	underwent	from the	rate declined
Benthien	study (3)	to determine	primary TJA	Connecticut's	from 5.1% in
RA, et al	study (3)	whether	within a	Acute Care	2005 to 3.6% in
KA, et al			Connecticut		
		comprehensiv e efforts to		Hospital	2015. Logistic
			hospital	Inpatient	models indicated
		reduce	between 2005	Discharge	that black patients
		hospital	and 2015 with	Database	(Odds Ratio [OR]
		readmissions	a total of	(HIDD) to	= 1.68, P <
		following	102,510	evaluate	0.0001) and
		total joint	admissions	patient who	Hispanic patients
		arthroplasty	during that	underwent	(OR = 1.48, P <
		(TJA) have	time frame. Of	TJA from	0.0001) were
		impacted	the patients	2005 to 2015	significantly more
		racial and	who were	and compared	likely to be
		ethnic	readmitted	patients who	readmitted within
		disparities in	within 30-days	were	30 days of
		readmission	of their index	readmitted	discharge
		rates during	procedure, the	and not	following a total
		the period	mean age of	readmitted to	joint arthroplasty
		from 2005 to	these was 66.3	the hospital	than white
		2015.	years, and the	within 30	patients over the
			majority of	days of	study period. The
			admissions	surgery.	readmission rates
			involved white	Inclusion	for black patients
			patients	criteria	increased
			(91.6%) and	included	compared with
			patients	patients who	those for white
			covered by	were greater	patients from
			Medicare	than 18 years	2005 through
			(54.0%) and	of age and	2008 and
			private	underwent	decreased relative
			insurers	TJA for a	to those for white
			(40.6%). 60%	primary	patients from
			of patients	diagnosis of	2009 to 2015 (OR
			included	osteoarthritis	= 0.24, P =
			within the	(OA),	0.030).
			study were	rheumatoid	,
			women.	arthritis (RA),	
				aseptic	
				necrosis or	
				congenital	
	<u> </u>	1	l	1 2 211 5 2111 1411	I

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				joint deformity. Exclusion criteria included those who died while hospitalized following the index admission. Statistical analysis was conducted using logistic regression models for clustered data using generalized estimating equations (GEEs).	
Bass AR, Mehta B, Szymonif ka J, et al	Prospective cohort study (2)	The purpose of this investigation was to determine whether racial disparities in total knee replacement (TKR) failure are explained by poverty.	A total of 4,062 patients who underwent primary unilateral TKR and who were enrolled in the Hospital for Special Surgery (HSS) Knee Replacement Registry were included in the study. The	The authors included black and white New York state residents who enrolled in a single-institution TKR registry from 2008 to 2012 within the study. Patients were linked by geocoded	A total of 3% of patients (122/4,062) required revision a median of 454 days (range 215-829) after their index procedure. Black patients were a higher risk of requiring revision (Hazard Ratio [HR] = 1.69, 95% CI 1.01-2.81). Predictors of

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	mean age was $68.4 \pm 10$ years, $64\%$ of patients were female, $8\%$ lived in census tracts with > $20\%$ of the population under the poverty line and $9\%$ were black. The mean follow-up was $5.3$ years.	addresses to residential census tracts. Multivariable Cox regression was used to assess predictors of TKR revision. Multivariable logistic regression was used to analyze predictors of TKR failure, defined as TKR revision in New York state within 2 years after surgery or as HSS TKR quality of life score of "not improved" or "worsened" 2 years after surgery.	TKR revision after multivariable analysis were noted to be younger age (HR = 0.80, 95% CI 0.74-0.88, P < 0.001), male sex, and use of a constrained prosthesis (HR = 2.31, 95% CI 1.42-3.76, P < 0.001). TKR failure occurred in 7% of patients (200/2,832) who completed 2-year surveys with risk factors for TKR failure being non-osteoarthritis TKR indication, low surgeon volume of < 50 cases a year (OR = 3.00, 95% CI 1.56-5.76, P = 0.001) and low HSS Expectations Survey score (OR = 0.84, 95% CI 0.75-0.94, P = 0.002). Black race was not a risk factor for TKR failure and community poverty was not associated with either TKR
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					revision or failure.
Berges IM, Juo YF, Ostir GV, et al	Retrospec tive cohort study (3)	The purpose of this study was to examine gender and ethnic differences in functional status and living setting for patients after hip arthroplasty.	A total of 69,793 patients who received inpatient medical rehabilitation after hip arthroplasty between 2002 and 2003 were included. The average age of all patients included within the study was 71.7 ± 9.3 years. 46,387 (66.5%) of all patients were female and 40,139 (53%) were married. 63,061 (90.4%) were white, 4,969 (7.1%) were	The authors analyzed the Uniform Data System for Medical Rehabilitation (UDSMR) to identify patients who had undergone hip arthroplasty surgery between 2002 and 2003. Inclusion criteria included patients who had undergone hip arthroplasty surgery and those greater than 50 years of age. Exclusion	Whites had the highest mean Functional Independence Measure (FIM) change (mean [SE], 23.42 [0.18]), Asians had the lowest mean FIM change (mean [SE] 22.00 [0.53]), and women had a higher mean FIM change (mean [SE], 22.79 [0.23]) than men. Black (Odds Ratio [OR] = 1.23, 95% Confidence [CI] 1.07-1.41, P < 0.05) and Hispanic (OR = 1.51, 95% CI 1.15-1.99, P < 0.05) patients had

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black, 1,390	criteria	statistically
(2.0%) were	included those	significant higher
Hispanic and	who had	odds of home
373 (0.5%)	missing	discharge
were Asian.	gender or race	compared with
Were Asian.	information,	white patients.
	those who did	Asian patients did
	not live at	not have a
	home prior to	statistically
	admission and	•
		significant higher odds of home
	patients who had	
		discharge
	transferred	compared with
	from an	white patients.
	outside	Male gender (OR
	facility.	= 1.08, 95% CI
	Demographic	1.01-1.17, P <
	variables were	0.05), being
	compared by	married (OR =
	ethnic group	2.42, 95% CI
	using	2.24-2.61, P <
	univariate	0.05), and higher
	statistics for	discharge FIM
	continuous	ratings (OR =
	variables and	1.10, 95% CI
	Chi squared	1.10 = 1.11, P <
	test for	0.05) were all
	categorical	associated with
	variables.	greater odds of
	Logistic	home discharge.
	regression	Older age was
	was used to	also associated
	examine the	with lower odds
	effect of race,	of home
	ethnicity and	discharge (OR =
	gender on	0.97, 95% CI
	discharge	0.97-0.98, P <
	home vs. not	0.05).
	home.	,
<u> </u>		

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Byrne MM, sectional Souchek J, Richardso n M, et al study (4)  Richardso n More included sungle study (50, 39.5%)  Confidence Interval (CI)  Rochardso methodology which individuals individuals were also less likely to choose surgery when compared to white participants which, 130  Rochardso n Mally (10)  Rochardso n Mall participants was 55.03 ± analysis methodology which Individuals were alternative hypothetical scenarios for medical or patients were female and 270  Rochardso n Malley individuals were also less likely to choose surgery when compared to white participants which [CI]  Rochardso n Mally (10)  Rochardso n Mally (10)	D	C	T1	A 4-4-1 C201	T1/1	A A
Souchek J, Richardso n M, et al was to determine whether there are ethnic differences in preferences for surgery versus (33.3%) of medical treatment of knee osteoarthritis (OA). (33.3%) were osteoarthritis (OA). (33.3%) were African American (AA). 227 (58.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African participants having the lowest average lowest and the likely to choose surgery when compared to white patients (Odds Ratio [OR] = 0.63, 95% (Confidence involved individuals were also less likely to choose surgery when compared to white participants were female and 270 (69.05%) had a diagnosis of knee OA. More white included participants were in the middle- and higher-income ranges, with African participants having the County, TX lowest average age of all participants were included within the study. The average age of all participants were for study. The average sectional in-person interviews using conjoint analysis methodology which individuals wish methodology which analysis methodology which individuals were also less likely to choose surgery when compared to white participants analysis methodology which individuals were also less likely to choose surgery when compared to white participants analysis methodology which individuals were also less likely to choose surgery when compared to white participants analysis methodology which individuals were alternative hypothetical scenarios for medical or surgical treatment of knee OA. Half of the cohort included individuals were alternative hypothetical scenarios for medical or surgical treatment of knee OA. Half of the cohort included individuals were alternative hypothetical scenarios for medical or surgical treatment of knee OA. Half of the cohort included individuals were alternative hypothetical scenarios for medical or surgical vertical participants were in the middle- and higher-income alternative hypothetical scenarios for medical or surgical vertical par	•					
Richardso n M, et al  determine whether there are ethnic differences in preferences for surgery versus for surgery versus (33.3%) of medical treatment of knee osteoarthritis (OA).  (OA).  determine whether there are ethnic differences in preferences for surgery versus (33.3%) of medical treatment of knee osteoarthritis (OA).  (OA).  determine whether there are ethnic differences in preferences for surgery when compared to white patients were treatment of knee (33.3%) of patients were osteoarthritis (OA).  (OA).  determine whether there study. The average age of all participants was 55.03 ± lindividuals methodology which involved individuals were also less likely to choose surgery when compared to white patients were female and 270 (69.05%) had a diagnosis of knee OA.  More white participants were in the middle- and higher-income ranges, with African American participants having the likelihood of patients choosing to undergo knee replacement surgery.  determine whether there are ethnic study. The average age of all participants were for surger when compared to white participant handly increased to midividuals were alternative hypothetical scenarios for surgical treatment of (OR = 0.69, 95% CI 0.51-0.94] and treatment of knee OA.  More white participants were in the middle- and higher-income ranges, with African participants having the County, TX lowest average are of interviews uninerviews unally increased to white participants wished to choose surgery when compared to white participants analysis methodology which involved individuals were also less likely to choose surgery when compared to white packs analysis methodology which involved individuals were also less likely to choose surgery when compared to white packs analysis.  Confidence Interval [CI] 0.42-0.93).  Women and older individuals of making treatment of knee OA. Cl 0.51-0.94] and treatment of knee OA. Half of the involved individuals were also less likely to choose surgery when compared to which involved individuals or choices also less likely to cho	,			-	1 *	
whether there are ethnic differences in preferences for surgery versus (33.3%) of medical treatment of knee osteoarthritis (OA).  More white patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African American participants were in the middle- and ohight- aring the first aring the first aring the lowest average age of all participants average all participants average age of all participants average in interviews using conjoint analysis analysis and participants were white, 130 methodology which involved individuals were also less likely to choose surgery when compared to white patients (OAds Ratio [OR] = 0.63, 95% Confidence Interval [CI] o.42-0.93). Women and older individuals were also less likely to choose surgery when compared to white patients (OAds Ratio [OR] = 0.63, 95% Confidence Interval [CI] o.42-0.93). Women and older individuals were also less likely to choose surgery when compared to white patients (OR = 0.69, 95% CI 0.51-0.94] and OR = 0.98, 95% CI 0.51-0.94] and OR = 0.98, 95% CI 0.97-0.99). Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.	-	study (4)				
are ethnic differences in preferences for surgery versus (33.3%) of medical pattients were treatment of knee osteoarthritis (OA).  (OA).    131 (33.4%) were osteoarthritis (OA).    (OA).    131 (33.4%) were osteoarthritis (OA).    (OA).						
differences in preferences for surgery versus (33.3%) of medical patients were treatment of knee (33.3%) were osteoarthritis (OA).  (OA).  (OA).  (OA).  (Odds Ratio [OR] = 0.63, 95%  Confidence Interval [CI] on the patients were osteoarthritis (OA).  (OB).  (OA).  (OA).  (OB).  (OA).  (OB).  (OA).  (OB).  (OA).  (OA).  (OB).  (OA).  (OB).  (OA).  (OB).  (OA).  (OB).  (OA).  (OA).  (OB).  (OB).  (OA).  (OB).  (OB).  (OA).  (OB).  (OA).  (OB).  (OB).  (OA).  (OB).  (OA).  (OB).  (OR).  (OB).  (OB).  (OA).  (OB).  (OA).  (OB).  (OA).  (OA	n M, et al				-	_
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for surgery versus (33.3%) of medical treatment of knee osteoarthritis (OA).  (						
versus medical patients were treatment of knee (33.3%) were osteoarthritis (OA).  Were African American (AA). 227 (58.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African participants having the lowest average  Versus (33.3%) of patients were treatment of knee OA. (33.3%) were Mhite, 130 (individuals making undividuals were also less likely to choose surgery when compared to males and younger patients (OR = 0.69, 95% CI 0.51-0.94] and treatment of knee OA. Half of the cohort in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.					•	
medical treatment of knee osteoarthritis (OA).    Marcian   Capacita   Capaci						
treatment of knee osteoarthritis (OA).  White, 130 individuals making choices also less likely to choose surgery when compared to males and younger patients were female and 270 (68.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African American participants having the lowest average and the worm and older individuals were also less likely to choose surgery when compared to males and younger patients of choose surgery when compared to males and younger patients of CI 0.51-0.94] and CI 0.51-0.94] and CI 0.97-0.99). Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.						
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osteoarthritis (OA).  Hispanic and 131 (33.4%) were African American (AA). 227 (58.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African American participants having the lowest average    OA   Hispanic and 131 (33.4%) between alternative hypothetical scenarios for medical or surgical compared to males and younger patients (OR = 0.69, 95% CI 0.51-0.94] and to males and younger patients (OR = 0.98, 95% CI 0.51-0.94] and the higher-income in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.						
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American (AA). 227 (58.06%) of patients were surgical female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African African participants having the lowest average labeled as cenarios for medical or scenarios for medical or secenarios for medical or secenarios for medical or secenarios for medical or secenarios for medical or supported secenarios for medical or secenarios for medical or secenarios for medical or supported surgical vollet and younger patients (OR = 0.69, 95% CI 0.51-0.94] and OR = 0.98, 95% CI 0.97-0.99). Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.			(OA).	` /		
(AA). 227 (58.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African African participants having the lowest average  (AA). 227 (58.06%) of medical or scenarios for medical or surgical treatment of OR = 0.98, 95%  CI 0.51-0.94] and OR = 0.98, 95%  CI 0.97-0.99).  Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				were African		
(58.06%) of patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African American participants having the lowest average losses were in the participants having the lowest average losses were in the participants having the lowest average losses los en los expersos expersos los expersos los expersos los expersos los expersos expersos los expersos					• •	to males and
patients were female and 270 (69.05%) had a diagnosis of knee OA. More white participants were in the middle- and higher-income ranges, with African African participants having the lowest average of the female and 270 (69.05%) had a diagnosis of knee OA. (CI 0.97-0.99). Larger reductions in negative symptoms with cohort in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				` /		,
female and 270 (69.05%) had a knee OA. diagnosis of knee OA. More white included participants were in the middle- and higher-income ranges, with African American participants having the Lowest average in the county, TX lowest average in treatment of knee OA.  The color of the c				` /	medical or	(OR = 0.69, 95%)
(69.05%) had a diagnosis of knee OA. Half of the knee OA. Cohort in negative symptoms with surgery were in the middle- and higher-income ranges, with African American participants having the Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.  CI 0.97-0.99). Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				1	_	_
diagnosis of knee OA.  More white included individuals were in the middle- and higher-income ranges, with African American participants having the lowest average of American lowest average and the Larger reductions in negative symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				female and 270		OR = 0.98, 95%
knee OA.  More white included symptoms with participants individuals surgery were in the over the age middle- and higher-income ranges, with through African random digit American participants Harris participants having the lowest average included symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				(69.05%) had a	knee OA.	CI 0.97-0.99).
More white participants were in the middle- and higher-income ranges, with African American participants having the lowest average line line luded symptoms with surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				diagnosis of	Half of the	Larger reductions
participants were in the were in the higher-income ranges, with African American participants having the lowest average and the surgery significantly increased the likelihood of patients choosing to undergo knee replacement surgery.				knee OA.	cohort	in negative
were in the middle- and higher-income ranges, with African random digit American participants having the lowest average and the over the age of 20 who increased the likelihood of patients choosing to undergo knee replacement surgery.				More white	included	symptoms with
middle- and higher-income ranges, with African American participants having the lowest average and the middle- and higher-income ranges, with through random digit to undergo knee replacement surgery.				participants	individuals	surgery
higher-income ranges, with African American participants having the lowest average higher-income ranges, with through random digit to undergo knee replacement surgery.				were in the	over the age	significantly
ranges, with through random digit to undergo knee American dialing in replacement surgery.  having the lowest average and the patients choosing to undergo knee replacement surgery.				middle- and	of 20 who	increased the
African random digit to undergo knee replacement surgery.  African dialing in replacement surgery.  County, TX lowest average and the				higher-income	were recruited	likelihood of
American dialing in replacement surgery.  having the lowest average and the replacement surgery.				ranges, with	through	patients choosing
participants having the lowest average and the surgery.				African	random digit	to undergo knee
having the lowest average and the				American	dialing in	replacement
having the County, TX lowest average and the				participants	Harris	surgery.
lowest average and the				having the	County, TX	
					_	
				income.	remainder	
Hispanics were included				Hispanics were	included	
more likely to patients with				-	patients with	
be in the diagnosed				I -		
lowest knee OA				lowest		
education class   being treated				education class		
than were at a single					_	
African institution in				African	_	

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	Americans or	Houston, TX.	
	whites.	Logistic	
	willtes.	regression	
		was used to	
		perform an	
		analysis of the	
		obtained	
		conjoint data.	

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Cai X,	Retrospec	Cohort 1: can	The first	For cohort 1,	The c-statistic for
Cram P,	tive	a hospital	cohort	primary	the cohort 1 risk
Vaughan-	cohort	outcome	included	outcome was	adjustment model
Sarrazin	study (3)	measure of	610,285 TKA	complications	was .7, which was
M	study (5)	risk-adjusted	admissions to	and mortality	comparable to
141		mortality or	3101 hospitals	within 90	those in validated
		complication	during a 3-year	days after	models of short-
		rate within 90	period. Only	TKA for each	term inpatient
		days of	Caucasian and	admission.	mortality based
		primary TKA	African	Outcomes	on Medicare
		be directly	American	included:	claims and
		used to	elective TKA	sepsis,	
		profile		hemorrhage,	suggests
		-	patients were retained.	pulmonary	appropriate statistical
		hospital	The second	embolism,	
		quality of care?	cohort	· · · · · · · · · · · · · · · · · · ·	performance of the model.
		Cohort 2: are	included	deep vein	
				thrombosis,	In cohort 2, for
		African	91,599 patients admitted to	severe wound	patients
		Americans		infection	undergoing
		more likely to	2842 hospitals.	requiring	TKAs, African
		receive TKAs	5.3% of	readmission,	American was not
		at low-quality	patients	and death.	a predictor of
		hospitals	(n=4894) were	Rankings	admission to
		compared to	African	were	high-quality
		Caucasian	American.	established	hospitals (p=.34)
		patients?	64.7% of	based on the	but was
			patients in	ratio of	associated with
			cohort 2 were	observed	admissions to
			female.	adverse	low-quality
				outcomes (O)	hospitals
				to expected	(p<.001).
				adverse	
				outcome rate	
				(E). Rankings	
				were defined	
				as high-	
				quality (O/E	
				ratio < 20th	
				percentile),	
				low-quality	
				(O/E ratio >	
				or equal to	
				80th	

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		ar in quara to the	ercentile), and adeterminate uality (O/E atio in etween the wo). Hospitals reating atients in ohort 2 were anked into an of the aree groups rom the 90-ay ostoperative utcome neasure stablished in ohort 1.	
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Cavanaug	Retrospec	The purpose	A total of	The authors	During the
h AM,	tive	of this study	10,325 women	analyzed data	decade prior to
Rauh MJ,	cohort	was to	from the WHI	from the	TKA, black
Thompson	study (3)	determine if	who	Women's	women had lower
CA, et al	study (3)	preoperative	underwent	Health	physical function
CA, et al				Initiative	scores than white
		physical function is	primary TKA		
			were included,	(WHI) to	women (mean
		associated	with 9528	evaluate	difference, -5.8,
		with race or	(92.3%) self-	preoperative	95% Confidence
		ethnic	identifying as	physical	Interval [CI] -8.0
		disparities in	white, 622	function in	[-3.6]) and
		functional	(6.0%) as	postmenopaus	higher odds of
		outcomes	black, and 175	al women	experiencing
		after total	(1.7%) as	from 1993 to	difficulty walking
		knee	Hispanic. The	2005. The	a single block
		arthroplasty	mean (SD) age	RAND 36-	(Odds Ratio [OR]
		(TKA)	at TKA was	Item Health	= 0.86, 95% CI
		among older	74.6 (5.5)	Survey	1.57-2.21),
		women.	years for white	(RAND-36)	walking multiple
			women, 73.1	physical	blocks (OR =
			(5.2) years for	function scale	2.14, 95% CI
			Hispanic	was used to	1.83-2.50), and
			women, and	measure	climbing 1 flight
			73.1 (5.3)	preoperative	of stairs (OR =
			years for black	physical	1.81, 95% CI
			women.	function.	1.55-2.12). After
			Compared	Demographic	TKA, black
			with white	information	women continued
			women, black	was collected	to have lower
			and Hispanic	through	physical function
			women were	questionnaires	scores throughout
			less likely to	administered	the decade (mean
			be married,	at the WHI	difference, -7.8
			had lower	baseline.	95% CI –10.8 -
			income, lower	Race/ethnicity	-4.9). Hispanic
			educational	was	women had
			attainment,	categorized	similar PF scores
			higher body	according to	to white women
			mass index	self-identified	during the pre-
			(BMI), and	racial or	TKA and post-
			lower	ethnic group	TKA periods.
			participation in	and was	
			moderate to	limited to the	

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Page	2.4

vigorous responses of physical non-Hispanic activity. white, non-Hispanic black or African
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Carra	Dua au4"	Tl	A 40401 - F	Tl	D1 - als seve 1. 1
Cavanaug	Prospectiv	The purpose	A total of	The authors	Black women had
h AM,	e cohort	of this	102,767	analyzed data	the greatest
Rauh MJ,	study (2)	investigation	women	from the WHI	prevalence of
Thompson		was to	enrolled in the	to evaluate	moderate to
CA, et al		evaluate	Women's	racial and	severe joint pain
		racial and	Health	ethnic	(28%) followed
		ethnic	Initiative	disparities in	by Hispanic
		disparities in	(WHI) who	utilization of	(25.6%) and
		utilization of	underwent	TKA in	white women
		total knee	primary total	postmenopaus	(23.2%). Black
		arthroplasty	knee	al women	women also had
		(TKA) in	arthroplasty	from 1993 to	the highest
		relation to	were included.	2005. WHI	prevalence of
		demographic,	The average	participants	mobility
		health, and	follow-up time	with linked	disability (33.8%)
		socioeconomi	was 9.7 years	Medicare data	followed by
		c status	for all	were included	Hispanic (28.7%)
		variables.	participants.	within the	and white women
			88.0% of	study	(19.5%). TKA
			women were	population.	utilization was
			white, 8.7%	Inclusion	higher among
			black, and	criteria	white women
			3.3% Hispanic.	included	(10.7/1,000
			Black and	women who	person-years)
			Hispanic	self-identified	compared to
			women tended	as white,	black (8.5/1,000
			to be younger	black or	person-years) and
			and had lower	Hispanic.	Hispanic women
			income,	Exclusion	(7.6/1,000
			educational	criteria	person-years).
			attainment, and	included	Among women
			(Neighborhood	patients	with health
			socioeconomic	whose	indicators for
			status) NSES	original	TKA including
			compared with	reason for	diagnosis of
			white women.	Medicare	arthritis,
				eligibility was	moderate to
					severe joint pain,
				benefits or	
				end-stage	_
				renal disease	_
				(ESRD),	women were
				women with	
			Hispanic women tended to be younger and had lower income, educational attainment, and (Neighborhood socioeconomic status) NSES compared with	self-identified as white, black or Hispanic. Exclusion criteria included patients whose original reason for Medicare eligibility was disability benefits or end-stage renal disease (ESRD),	compared to black (8.5/1,000 person-years) and Hispanic women (7.6/1,000 person-years). Among women with health indicators for TKA including diagnosis of arthritis, moderate to severe joint pain, and mobility disability, black and Hispanic

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	111 1
prior TKA.	likely to undergo
Age,	TKA after
race/ethnicity,	adjusting for age
income, and	(Black: Hazard
education	Ratio [HR] =
were	0.70, 95%
ascertained by	Confidence
questionnaire	Interval [CI]
at WHI	0.63-0.79) and
enrollment.	Hispanic: HR =
Baseline	0.58, 95% CI
characteristics	0.44- 0.77).
were	Adjusting for
compared by	socioeconomic
racial/ethnic	status modestly
groups using	attenuated the
Chi-square	measured
and analysis	disparity, but
of variance	significant
tests for	differences
categorical	remained (Black:
and	HR = 0.75, 95%
continuous	CI 0.67-0.89 and
variables. To	Hispanic: HR =
examine	0.65, 95% CI
relative	0.47-0.89).
disparities in	
primary TKA	
utilization,	
time to first	
TKA was	
analyzed	
using Cox	
proportional	
hazards (PH)	
regression	
models.	
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	D .:	T1	A 1 C	771 4	NI II' '
Cavanaug	Prospectiv	The purpose	A total of	The authors	Non-Hispanic
h AM,	e cohort	of this study	8,349 women	analyzed data	black women had
Rauh MJ,	study (2)	was to	who	from the WHI	worse physical
Thompson		evaluate if	underwent	to evaluate	function (median
CA, et al		differences in	primary TKA	rehabilitation	score, 65 vs 70)
		rehabilitation	between 2006	usage in	and higher
		utilization in	and 2013 were	postmenopaus	likelihood of
		patients after	included.	al women	disability (13.2%
		total knee	92.8% of	who	vs 6.9%) than
		arthroplasty	patients were	underwent	non-Hispanic
		(TKA)	white and	primary TKA	white women
		contribute to	7.3% were	between 2006	before surgery.
		racial	black. Black	and 2013.	After undergoing
		disparities in	women who	Rehabilitation	elective TKA,
		postoperative	underwent	utilization	black women
		functional	TKA tended to	was	were less likely
		outcomes.	be younger (P	determined	than white
			<.0001), less	through	women to be
			likely to be	linked	discharged home
			married (P <	Medicare	postoperatively
			.0001), and	claims data.	(35.8% vs 46.1%,
			more likely to	Post-acute	P < .0001).
			live alone (P <	discharge	Proportions of
			0.001). Black	destination	women
			women had	including	discharged to
			lower incomes,	home, skilled	inpatient rehab
			education, and	nursing	facilities (IRF)
			neighborhood	facility, and	settings were
			socioeconomic	inpatient	similar between
			status than	rehabilitation	racial groups
			white women	facility,	(43.7% vs
			(P < 0.0001  for)	facility length	43.4%), but black
			each).	of stay, and	women were
				number of	more likely to be
				home health	discharged to a
				physical	Skilled Nursing
				therapy	Facility (SNF)
				(HHPT) and	than white
				outpatient	women (20.6% vs
				physical	11.0%, P <
				therapy	0.0001). A higher
				(OPPT)	proportion of
				sessions were	black women
				sessions were	DIACK WOITIEII

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				compared	received HHPT
				between racial	services (52.6%
				groups.	vs 47.8%; P <
				810 mps.	0.02), and in
					those receiving
					HHPT, black
					women received
					more visits
					(median number
					of visits, 10 vs 9;
					P < 0.001). There
					/
					was no significant difference in
					those who
					received OPPT, but for those who
					did receive
					OPPT, black
					women received more visits than
					white women
					(median number
					of visits, 17.5 vs
C1 III	D (	т .	TT1 ' 4	Г	16.0; P = 0.01).
Chang HJ,	Prospectiv	To examine	Thirty-seven	Focus groups	White American
Mehta PS,	e	differences	people, all	of patients	men
Rosenberg	observatio	by	actively	actively	demonstrated the
A, et al	nal study	race/ethnicity	considering	considering	greatest amount
	(2)	and gender in	TKR,	TKR were	of factual
		patients'	participated in	conducted.	background
		concerns	the 6 focus	Discussion	information.
		regarding	groups	included	Nearly all had
		total knee	between 1998	patients'	researched TKR,
		replacement	and 1999	questions and	had actively
		(TKR)	(Table 1).	concerns	chosen their
			Participants	regarding	physician, and
			ranged in age	TKR. The	had researched
			from 39 to 76	software	other available
			years (mean	ATLAS.ti was	options. They
			age 60 years);	used to	were generally
			12 were men	tabulate	more prepared to
			and 25 were	themes by	discuss TKR in
			women.	race/ethnicity	terms of

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Twenty identified themselves as white Americans and 17 as African Americans. Of the white Americans, 5 said their culture and upbringing was mainstream white American but their ethnicity included Latino (n = 4) and Native American (n = 1). Because results for those 5 individuals were similar to those of the other white Americans, the results we present are based on analysis comparing 20 white	and gender. Concerns raised by focus group participants were compared with thematic content from patient joint replacement information materials. This comparison used patient literature from 3 high- volume academic TKR centers, the Arthritis Foundation, and the American Academy of Orthopedic Surgeons	information already acquired. Questions concerning alternatives to TKR (other options) were most frequent (18%), followed by concerns regarding pain medication and addiction possibilities (17%). White American women asked 57% of the preoperative questions (n = 34), covering the widest range of topics, including knee anatomy, devices and device technology, employment issues, physician trust, possibility of pain medication addiction, lifespan of the prosthesis, other options, and
Americans, the results we present are based on	Surgeons	trust, possibility of pain medication addiction,
comparing 20		_
Americans		potential drawbacks to surgery. African American women

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Chen J, Rizzo JA, Parasuram	Retrospec tive cohort	The purpose of this study is to examine	Patients eligible for THA totaled	The Nationwide Inpatient	expressed a desire to know the criteria for TKR and reasons for their own candidacy for TKR. They also mentioned finances. White American men expressed interest in devices and device technology, whereas African American men expressed concern over financial issues, specifically their health insurance coverage of TKR. African Americans were least likely to
an S, et al	study (3)	the racial disparities in receiving	150,525 and those eligible for TKA	Sample (NIS) of the Healthcare	have elective admissions (p<.001). After
		total hip or	totaled	Cost and	controlling for
		knee	366,085.	Utilization	covariates,
		arthroplasty,	Patients were	Project	African
		specifically in	separated into	(HCUP) administered	Americans
		relation to admission	racial groups as follows:	by the Agency	remained significantly less
		source.	white, African	for Healthcare	likely to have
			American, and	Research and	THR and TKR
			Hispanic.	Quality	procedures
				databases	compared with
				were used.	Whites. The odds
				Analyses	ratio of African
				were	Americans for
				performed to determine	THR was 0.57 (p<.001) and for
				uctermine	$(h \sim 0.01)$ and for

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				likelihood to receive TJA based on race and patient factors.	TKR was 0.76 (p<.001). The odds ratio of Hispanics for THR was 0.49 (p<.001).
Chisari E, Grosso MJ, Nelson CL, et al	Retrospec tive cohort study (3)	The purpose of this study is to compare differences in perioperative complications and functional outcomes between African American and Caucasian patients undergoing THA and TKA.	5284 patients were included in the study, of which 1041 were African American (24.5%). Mean age was 66 in Caucasian patients and 64.2 in African American patients. Female gender consisted of 51% and 63% of Caucasian and African American patient subgroups, respectively. African American patients had a lower mean Charlson	A consecutive series of all primary THA and TKA patients at a single institution from 2015 to 2018 was used for data collection. Data collected on patients included demographics, comorbidities, 90-day complications, readmissions, Veterans Rand 12-Item Health Survey (VR-12), Hip disability Osteoarthritis	Compared with white patients, African American patients had lower preoperative HOOS/KOOS (p<.001) and mental VR-12 scores (p<.001). However, there was no statistically significant difference at 1 year in HOOS/KOOS, mental VR-12, or physical VR-12 scores. When controlling for demographics and medical comorbidities, African American patients had increased

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comorbidity score compared to white patients (p<.001)	Outcome Score (HOOS), and Knee injury and Osteoarthritis Outcome Scores (KOOS). They were compared between African American and Caucasian patients. A multivariate analysis was performed to control for	rehabilitation facility discharge (p<.001), but no difference in readmissions or complications.
	analysis was performed to	

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JE, Deshpand e BR, Katz JN, et al	Retrospec tive cohort study (3)	race- and sex- specific rates of total knee arthroplasty (TKA) and to document independent effects of demographic factors on TKA incidence in a population with radiographica lly confirmed osteoarthritis (OA)	Thirty-five percent of subjects were under 65 years of age at 84 months follow-up, 41% were male and 26% were non-Whites. 970 (51%) knees were Kellgren Lawrence (KL) grade 2, 676 (35%) knees were KL 3, and 269 knees (14%) were KL 4. Eighty-one percent of subjects had at least some college education	Authors used data from the Osteoarthritis Initiative, a US-based, multicenter longitudinal study of knee OA. They selected subjects with radiographic symptomatic OA at baseline and determined TKA incidence rates (ratio of TKAs to time at risk for TKA) over 84 months of follow-up. They used multivariable Poisson regression to identify independent associations between demographic factors and TKA utilization.	During the study period there were 223 TKAs among 1,915 subjects for an incidence of 1.9% (95% confidence interval [95% CI] 1.7-2.2%). The overall rate was 1.9% (95% CI 1.5-2.3%) in men versus 2.0% (95% CI 1.7-2.3%) in women, and 2.2% (95% CI 1.9-2.6%) in whites versus 1.0% (95% CI 0.7-1.5%) in nonwhites. We observed a statistically significant interaction between sex and age (stratified at <65 and ≥65 years at end of follow-up), wherein male sex was associated with decreased risk of TKA for younger participants (relative risk [RR] 0.32) but not for older participants. Nonwhite race was associated with a decreased risk of TKA for
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		both younger (RR 0.32) and older (RR 0.43) participants.

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Cram P,	Retrospec	The purpose	A total of	The authors	White women
Hawker	tive	of this	62,075 patients	analyzed data	were significantly
G,	cohort	investigation	who	from the	more likely to
Matelski	study (3)	was to	underwent	American	experience an
	study (3)	evaluate	total knee		adverse outcome
J, et al		differences in		College of	
			arthroplasty	Surgeons National	when compared to white men
		total joint	(TKA) and		
		arthroplasty	39,334 patients	Surgical	(16.5% and
		(TJA)	who	Quality	14.1%; P < 0.001)
		outcomes in	underwent	Improvement	and black women
		white and	total hip	Program	were significantly
		black men	arthroplasty	(NSQIP) to	more likely to
		and women	(THA) were	identify black	experience an
		using a large	identified. For	and white	adverse outcome
		international	TKA 35.3%	adults who	when compared
		joints	were white	underwent	to black men
		registry.	men, 57.2%	primary total	(18.3% and
			white women,	knee	14.3%; P =
			1.9% black	arthroplasty	0.002). The
			men, and 5.6%	(TKA) and	higher rate of the
			black women.	total hip	composite
			For THA	arthroplasty	complications in
			41.1% were	(THA) from	women as
			white men,	2010 to 2013.	compared to men
			51.7% white	The outcomes	is almost entirely
			women, 3.4%	evaluated	explained by
			black men, and	were surgical	higher rates of
			3.9% black	complications	blood loss
			women. Male	including	requiring
			TKA	mortality,	transfusion in
			recipients were	pulmonary	women (14.9% vs
			slightly	embolism,	12.2% for white
			younger than	wound	women and white
			female TKA	infection,	men, 16.4% vs
			recipients	sepsis, blood	11.7% black
			among both	loss requiring	women and men;
			whites and	transfusion,	P < 0.001 for
			blacks (P<.001	myocardial	both). White men
			for both). Male	infarction,	and black men
			TKA	pneumonia,	who underwent
			recipients had	acute renal	TKA were
			slightly lower	failure and	significantly less
			BMI than their	incidence of	likely than white

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	T	T
female	discharge to a	and black women
counterparts	nursing home.	to be discharged
(P<.001 for	Patients were	to a nursing home
both white and	excluded from	(P < 0.001  for)
black) and men	the analysis if	both). White
were	they	women hand
significantly	underwent	slightly lower
more likely to	TJA for acute	incidence of
smoke than	fracture or	pulmonary
women	active	embolism and
(P<.001 for	infection,	bleeding
both). Both	patients with	compared to
black men and	disseminated	black women (P <
black women	cancer and	0.001 for both).
had clinically	patients who	White men and
significantly	were critically	white women
higher rates of	ill at the time	were less likely to
many	of surgery.	be discharged to a
comorbidities	Bivariate	nursing home or
including	methods (Chi	skilled care than
hypertension,	squared test	black men and
diabetes, and	and Kruskal-	black women
obesity	Wallace test)	(16.5% vs 18.9%
(P<.001).	were used to	for white and
(1 3.001).	examine	black men, P =
	unadjusted	0.05: 25.0% vs
	differences in	28.2%, P < 0.001
	demographics	for white and
	, clinical risk	black women).
	factors and	Hospital
	comorbidities	readmission
		within 30-days of
	between each	TKA was more
	group.	common for
	Multiple	blacks when
	logistic	
	regression	compared to
	was used to	whites of the
	calculate risk	same sex. White
	standardized	men and black
	rates of	men had
	outcomes.	statistically
		similar rates of
		adverse outcome

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	for both TKA and THA while white women had lower complication rates than black women for both TKA and THA. In adjusted
	white men and white women were both less likely to be discharged to a nursing home when compared to blacks. Readmission rates were generally similar for white men compared to black men and white women compared to black women for both TKA and THA.

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Cusano A, Venugopa 1 V, Gronbeck C, et al	Prospective cohort study (2)	The objective of this study was to present contemporary national data on the state of racial and ethnic disparities pertaining to primary total knee arthroplasty (TKA) in the USA.	In total, 262,954 patient records were analyzed, with racial identification available on 230,712 patients (87.7%). White patients accounted for 72.5% of all TKA procedures.	The 2011– 2017 National Surgical Quality Improvement Program was used to capture all patients who underwent primary TKA. The study outcomes were differences in demographic, comorbidity burden, perioperative factors, procedure utilization, hospital length of stay (LOS), and 30-day outcomes. The five major minority groups as defined by the National Institutes of Health were compared to non–Hispanic Whites.	There were higher rates of diabetes, hypertension, anemia, and prolonged surgery times among racial and ethnic minorities (p< 0.001). African Americans were likely to have higher rates of tobacco smoking and CHF (p< 0.001). After controlling for baseline differences, African Americans and Hispanics/Latinos had higher odds for experiencing complications and readmissions (p < 0.001). All racial and ethnic groups, except Asians, had longer LOS (p< 0.001). Asian patients had significantly lower rates of readmissions, reoperations, and overall complications (p< 0.001).
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Dangelma jer S, Yang A, Githens M, et al	Retrospec tive cohort study (3)	The purpose of this study was to evaluate how socioeconomic factors affect the utilization of total hip arthroplasty (THA) versus hemiarthroplasty (HA) for treatment of femoral neck fractures.	A total of 38,222 patients who underwent THA or HA for treatment of femoral neck fractures from 2009-2010. 76.8% were white, 3.6% were black, 3.4% were Hispanic, 1.3% were Asian or Pacific Islander and 1.6% were Native American. Of the patients included, 3659 underwent THA and 34,563 underwent HA. 62.8% of patients underwent surgery in a nonteaching hospital while 35.8% underwent surgery at a teaching hospital.	The authors analyzed data from the National Inpatient Sample (NIS) database to identify patients who underwent THA or HA for treatment of a femoral neck fracture. Patients were excluded if they sustained fractures at the base of the femoral neck or if the patient underwent open reduction internal fixation (ORIF).	Older patient age was associated with lower odds of receiving THA (OR = 0.944, 95% Confidence Interval [CI] 0.941-948, P < 0.0001). Asian or Pacific Islander patients had statistically lower rates of THA compared to Caucasian patients (OR = 0.507, 95% CI 0.330-0.778, P value = 0.0019). Sex and other race/ethnicities were not significantly associated with odds of receiving THA. No statistical difference was identified in the rates of THA according to median zip code income.
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Dharmasu	Retrospec	The purpose	A total of	The authors	The mean frailty
krit C,	tive	of this	349,165	analyzed the	score for white
Chan	cohort	investigation	patients who	American	patients was
SYS,	study (3)	was to assess	underwent	College of	significantly less
Applegate	study (3)	race and	primary total	Surgeons	than the mean
RL, et al		ethnicity as a	hip	National	frailty scores for
KL, ct ai		potential	arthroplasty	Surgical	both black
		moderator of	(THA), or total	Quality	patients (P <
		the	knee	Improvement	0.001) and
		associations	arthroplasty	Program	Hispanic
		of frailty and	(TKA) were	(NSQIP) to	patients (P <
		functional	included.	identify	0.001) for TKA
		status within		•	and less than the
			130,022	patients who underwent	
		arthroplasty outcomes.	(37.2%) underwent	either THA or	mean frailty score
		outcomes.	THA and	TKA between	for black patients who underwent
				2011 and	
			219,143	2011 and 2017.	THA $(P < .001)$ .
			(62.8%)		A higher
			underwent	Inclusion	percentage of
			TKA. The	criteria	Hispanics were
			average age for	included	non-independent
			TKA was	patients	in preoperative
			66.41 and	undergoing	functional status
			64.55 for	primary	compared to
			THA. 62.0%	elective THA	white and black
			of patients who	or TKA, race	patients for both
			underwent	or ethnicity	surgery types (P <
			TKA were	was coded as	0.001). Black
			female	white, black	$(2.92 \text{ days} \pm 2.29)$
			compared to	or Hispanic.	for TKA and 2.74
			54.8% for	Exclusion	days $\pm 2.15$ for
			THA. The	criteria	THA) and
			average Body	included	Hispanic patients
			Mass Index	patients	$(2.85 \text{ days} \pm 2.63)$
			(BMI) of	undergoing	for TKA and 2.68
			patients who	bilateral	days $\pm 5.05$ for
			underwent	procedures,	THA) had
			TKA was	patients with	significantly
			$33.98 \pm 6.91$	fractures,	longer average
			kg/m2 and	disseminated	LOS compared to
			$31.16 \pm 6.42$	cancer or	white patients
			kg/m2.	those who	$(2.67 \text{ days} \pm 2.52)$
				were critically	for TKA and 2.48

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	ill. Frailty was	days $\pm 2.81$ for
	assessed using	THA). For each
	the modified	additional point
	frailty index.	increase in frailty
	Regression	score, the odds of
	analyses were	readmission
	conducted to	increased by 23%
	examine	after TKA (Odds
	associations	Ratio [OR] =
	connecting	1.23, 95%
	frailty and	Confidence
	functional	Interval [CI]
	status with	1.19-1.27, P <
	30-day	0.001) and by
	readmission,	26% after THA
	adverse	(OR = 1.26, 95%)
	discharge, and	CI 1.21-1.32, P <
	length of stay	0.001). Non-
	(LOS).	independent
	Further	functional status
	analyses were	was also
	conducted to	significantly
	investigate	associated with
	race and	30-day
	ethnicity as	readmission for
	potential	both surgery
	moderators of	types, with nearly
	these	twice the odds of
	relationships.	readmission after
	•	TKA ( $OR = 1.87$ ,
		95% CI 1.60-
		2.19, P < 0.001)
		and over twice
		the odds of
		readmission after
		THA (OR 2.01,
		95% CI 1.73-
		2.34, P < 0.001).
		Black patients
		had 25% higher
		odds of 30-day
		readmission in
		the when

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		. 111 0
		controlling for
		frailty when
		compared to
		white patients
		(OR = 1.25, 95%)
		CI 1.13-1.34, P <
		0.001) and 30%
		higher odds (OR
		= 1.30,95% CI
		1.20-1.40, P <
		.001) when
		controlling for
		functional status
		after TKA. A 1-
		item increase in
		frailty score was
		associated with
		20% increased
		odds of an
		adverse discharge
		for TKA (OR =
		1.20, 95% CI
		1.18-1.22, P <
		0.001) and 23%
		increased odds of
		an adverse
		discharge for
		THA ( $OR = 1.23$ ,
		95% CI 1.20-
		1.26, P < 0.001). Non-independent
		functional status
		was also found to
		be significantly associated with
		over twice the
		over twice the odds of adverse
		discharge
		compared to
		patients with
		independent
		functional status
		for both TKA

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	1		
			(OR = 2.59, 95%)
			CI 2.38-2.83, P <
			0.001) and THA
			(OR = 2.98, 95%)
			CI 2.72-3.27, P <
			0.001). A 1-item
			increase in the
			frailty score was
			associated with a
			4% longer LOS
			for TKA
			(Incidence Rate
			Ratio [IRR] =
			1.04, 95% CI
			1.04-1.05, P <
			0.001) and 5%
			longer LOS for
			THA (IRR =
			1.05, 95% CI
			1.04-1.05, P <
			0.001). Non-
			independent
			functional status
			was associated
			with a 22%
			increase in LOS
			after TKA (IRR =
			1.22, 95% CI
			1.20-1.25, P <
			0.001) and 25%
			increase in LOS
			after THA (IRR =
			1.25, 95% CI
			1.22 1.28, P <
			0.001).
1			0.001).

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Dunlop	Prospectiv	Are there	16,713 patients	Primary	Black adults
DD,	e	disparities	aged 51 years	outcome is	under 65 years
Manheim	observatio	according to	or older were	self-reported	old report similar
LM, Song	nal study	racial/ethnic	included in the	2-year use of	age/gender
J, et al	(2)	groups in the	study, 2262 of	arthritis	adjusted rates of
		use of knee	which were	related hip or	hip/knee arthritis
		and hip	black, 1292 or	knee surgery.	surgeries (95%
		arthroplasty	which were	Variables	confidence
		in patients	Hispanic, and	studied are	interval 0.87-
		younger than	13,159 of	demographics	2.38). Black
		65 years old?	which were	(race/ethnicity	patients aged 65
			white.	, gender, age),	and older report
				health needs	significantly
				(arthritis,	lower rates (95%
				chronic	confidence
				diseases,	interval 0.16-
				obesity,	0.55) of said
				physical	surgeries
				activity,	compared with
				functional	white patients.
				limitations),	Both under 65
				and medical	years old and
				access	older Hispanic
				(income,	adults report
				wealth,	lower utilization
				education, and	rates, however
				health	neither was
				insurance).	statistically
				Longitudinal	significant.
				data analyses	
				were used to	
				account for	
				biennial	
				observations	
				over time.	

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Dunlop	Retrospec	The purpose	There were	Public use	Compared with
DD, Song	tive	of this study	6159 patients	data from	older white
J,	cohort	is to assess	included in the	1993 to 1995	patients, older
Manheim	study (3)	racial	study, aged 69	was analyzed	Black and
LM, et al		disparities in	to 103 years	from the	Hispanic patients
		patients	old.	Asset and	were less likely to
		receiving		Health	receive joint
		total joint		Dynamics	replacement
		arthroplasty		Among the	surgery (95% CI
		(TJA) in		Oldest Old	0.2-0.71).
		patients older		(AHEAD).	
		than 69 years.		Primary	
				outcome is	
				self-reported	
				2-year use of	
				any arthritis	
				related joint	
				replacement.	
				Independent	
				variables	
				studied	
				included	
				demographics	
				, health needs	
				(arthritis,	
				medical	
				conditions,	
				functional	
				health), and	
				economic	
				access	
				(income,	
				assets,	
				education, and	
				health	
				insurance).	

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Elsharyda	Retrospec	Is there a	102,122	The American	African American
h A,	tive	difference in	patients were	College of	patients were
Embabi	cohort	perioperative	included in the	Surgeons-	younger (p<.001)
AS,	study (3)	care and	study, 8,028 of	National	and had a lower
Minhajud		postoperative	which were	Surgical	Charlson
din A, et		complications	African	Quality	comorbidity
al		in total joint	American.	Improvement	Index score
		arthroplasty	Mean age	Program	(p<.001). There
		based on	before	database was	was no significant
		race?	matching was	used for	difference in the
			62.08 years old	patient data	type of anesthesia
			in African	acquisition.	used between
			American	Type of	races. African
			patients and	anesthesia	American patients
			66.37 years old	(general vs	had a higher rate
			in white	neuraxial) and	of 30-day
			patients.	postoperative	postoperative
				complications	complications
				were	before matching
				evaluated	(3.08 vs. 2.20%, p
				before and	< 0.001) and after
				after creating	matching (3.63
				a 1:3 matched	vs. 2.33%) (OR
				sample of	1.58, 95% CL
				African	1.13-2.21, p =
				American vs	0.007).
				White patients	
				based on	
				propensity	
				scores.	

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

OT, Sun D, cohort study (3)  C, et al  Ive cohort study (3)  Ive cohort study (4)  Ive cohort study (5)  Ive cohort study (6)  Ive cohort study (6)  Ive cohort study (6)  Ive cohort study (6)  Ive cohort study (8)	Ezomo	Retrospec	The purpose	A total of	The authors	Blacks and
D, Gronbeck C, et al study (3) was to celective THA state of racial and ethnic disparities in total hip arthroplasty (THA). White patients comprised 74.5% of all THA procedures. Compared with white patients were more likely to be older, have male gender, have a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites. Whites. The primary whites. Latinos were also more likely to be collet, American College of college of Surgeons on chronic Surgioal College of Surgeons on chronic steroids and require functional assistance than winderwent clective THA program (NSQIP) to identify on chronic obstructive pulmonary disease, anemia, dyspnea, and CKD were the minority groups non-Hispanic or Latino, Asian, American, American, American Indian or Pacific ygroups were likely to be younger, have a higher BMI, and smoke tobacco than whites.	OT, Sun	-	* *	134,961	analyzed the	Hispanics or
Gronbeck C, et al study (3)	D,	cohort	investigation	patients who	_	-
cvaluate the state of racial and ethnic disparities in total hip arthroplasty (THA).  (THA).  Compared with white patients, Asian patients, Asian patients ware a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  Compared with white patients comprised patients, Asian patients were more likely to be younger, have a lower a higher BMI, and smoke tobacco than whites.  Celective THA from 2011 to Surgical steroids and require functional subsection and require functional steroids and require functional steroids and require functional satisfical proud require functional steroids and	-	study (3)	_		College of	more likely to be
state of racial and ethnic disparities in total hip arthroplasty (THA).  (THA).  State of racial and ethnic disparities in total hip arthroplasty (THA).  (THA).  State of racial and ethnic 2017 with available were arthroplasty (THA).  Non-Hispanic white patients comprised 74.5% of all THA procedures. Compared with white patients were more likely to be older, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be be dider, have a lower BMI, and some tobacco than whites.  Steroids and require functional assistance than whites (P < .001). Diabetes, hypertension, chronic obstructive pullmonary disease, anemia, dyspnea, and CKD were the most common comorbidities present in the most common comorbidities present in the black or study cohorts, with blacks demonstrating the highest prevalence of these comorbidities (P < .0001). All whites (P < .001). In contrast, all other racial or ethnic for program (NSQIP) to identify obstructive patients who underwent pullmonary disease, anemia, dyspnea, and CKD were the most common comorbidities present in the black or study cohorts, with blacks demonstrating the highest prevalence of these comorbidities (P < .0001). All whites (P < .001). In contrast, all other racial or ethnic for program (NSQIP) to identify obstructive patients who underwent elective THA from 2011 to CKD were the most common comorbidities present in the study cohorts, with blacks and require functional assistance than capurate whites (P < .001).	C. et al		evaluate the	elective THA	_	•
and ethnic disparities in total hip available were arthroplasty (THA).    Non-Hispanic white patients comprised 74.5% of all THA procedures. Compared with white patients were more likely to be older, have a lower BMI, and be a nonsmoker (P < 0.001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.    Surgical Quality Improvement assistance than whites (P < .001). Diabetes, hypertension, chronic obstructive pulmonary disease, anemia, dyspnea, and CKD were the minority groups non-Hispanic or Latino, Asian, African American, Hispanic or Latino, Asian, other racial or ethnicity groups were a higher BMI, and smoke tobacco than whites.    And smoke tobacco than white patients were available were identified. (NSQIP) to identify obstructive pulmonary disease, anemia, dyspnea, and CKD were the minority groups non-Hispanic or Latino, Asian, African American, Hispanic or Latino, Asian, Native, and ethnicity groups were a higher BMI, and smoke tobacco than whites.			state of racial	from 2011 to	_	steroids and
disparities in total hip arthroplasty (THA).  (THA).    Non-Hispanic white patients comprised 74.5% of all THA procedures. Compared with white patients, Asian patients were more likely to be 10der, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and swatch and shiples and shiples and shiples and shiples a higher BMI, and swatch and shiples and shiples and shiples and shiples are more likely to be younger, have a higher BMI, and swatch and shiples and shiples are more likely to be younger, have a higher BMI, and swatch and shiples are more likely to be younger, have a higher BMI, and smoke tobaccot than whites.    Mispanic more likely to be younger, have a higher BMI, and smoke tobaccot than whites.   Whites. The more likely to develop any						
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arthroplasty (THA).    Compared with white patients were more likely to be older, ransmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.    Arthroplasty (THA).			-			
Non-Hispanic white patients comprised recomprised rates comprised rates comprised rates comprised rates who opstructive patients who underwent rath procedures. Compared with white patients, Asian patients were more likely to be older, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke the primary whites.   NSQIP) to identify chronic obstructive patients who underwent elective THA disease, anemia, dyspnea, and CKD were the minority most common comorbidities present in the study cohorts, with blacks demonstrating the highest prevalence of these comorbidities (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke with non- to require an LOS whites. The primary to develop any			-		_	` /
white patients comprised 74.5% of all THA procedures. Compared with white patients, Asian patients were more likely to be older, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  white patients comprised 74.5% of all patients who underwent elective THA from 2011 to 2017. The with white minority most common comorbidities present in the study cohorts, with blacks demonstrating the highest prevalence of these comorbidities (P < .001). In Contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke with non-tobacco than whites.  whites. Identify patients who underwent disease, anemia, dyspnea, and CXFD with selective THA from 2011 to CXFD were the most common comorbidities present in the study cohorts, with blacks demonstrating the highest prevalence of these comorbidities (P < .001). In Indian or comorbidities (P < .0001). All groups, except Asian and Hawaiians or Pacific Islanders, were more likely to equire an LOS with non- addition, blacks were more likely to develop any					_	ŕ
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THA procedures. Compared with white patients, Asian patients were more likely to be older, have male gender, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  elective THA from 2011 to 2017. The minority groups non- Hispanic black or study cohorts, demonstrating the blacks or study cohorts, demonstrating the highest prevalence of these comorbidities present in the study cohorts, demonstrating the highest prevalence of these comorbidities (P < .0001). All groups, except Asian and Hawaiians or Pacific Islanders, were more likely to require an LOS were the most common comorbidities prevalence of these comorbidities (P < .0001). All groups, except Asian and Hawaiians or Pacific Islanders, were more likely to require an LOS yellows with non- Hispanic whites. whites. The primary blocks were more likely to develop any				-	-	
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be older, have male gender, have a lower BMI, and be a nonsmoker (P < .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  be older, have male gender, American, Hispanic or Latino, Asian, prevalence of these comorbidities (P < .001). In Indian or comorbidities (P < .0001). All groups, except Asian and Hawaiian or Hawaiians or Pacific Pacific Islanders, were more likely to require an LOS >2 days. In addition, blacks were more likely to develop any				-	_	-
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BMI, and be a nonsmoker (P					,	_
nonsmoker (P < .001). In Indian or comorbidities (P contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.    Native compared to require an LOS of the second to require and the second to require an LOS of the second to require and the seco					-	_
<ul> <li>&lt; .001). In contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.</li> <li>Indian or comorbidities (P &lt; .0001). All groups, except Asian and Hawaiian or Pacific Pacific Islanders, were more likely to require an LOS of the work with non-primary to develop any</li> </ul>				*		-
contrast, all other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  Contrast, all other racial or ethnicity (Native, and Native, and Hawaiians or Pacific Islanders, Were more likely to require an LOS with non- >2 days. In addition, blacks were more likely primary to develop any				`	Indian or	comorbidities (P
other racial or ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  Other racial or ethnicity (and Native, and Native Asian and Hawaiians or Pacific Islanders, were more likely to require an LOS and smoke with non-year addition, blacks were more likely primary to develop any				/		`
ethnicity groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  Wative Hawaiian or Pacific Pacific Islanders, were more likely to require an LOS >2 days. In addition, blacks were more likely primary to develop any				•		· · · · · · · · · · · · · · · · · · ·
groups were likely to be younger, have a higher BMI, and smoke tobacco than whites.  Hawaiian or Pacific Islanders, were more likely to require an LOS with non-Hispanic addition, blacks were more likely primary to develop any					•	
likely to be younger, have a higher BMI, and smoke tobacco than whites.  Pacific Islanders, were more likely to require an LOS >2 days. In addition, blacks were more likely primary to develop any				•	Hawaiian or	Hawaiians or
younger, have a higher BMI, and smoke tobacco than whites.  younger, have a higher BMI, and smoke with non-tobacco than whites.  Islander were compared to require an LOS >2 days. In addition, blacks were more likely primary to develop any				-	Pacific	Pacific Islanders,
a higher BMI, and smoke with non-tobacco than whites.  a higher BMI, compared with non-y2 days. In addition, blacks whites. The primary to develop any					Islander were	were more likely
and smoke tobacco than whites.  and smoke tobacco than whites.  whites.  whites.  with non- 2 days. In addition, blacks were more likely primary to develop any					compared	•
tobacco than whites. Hispanic whites. The primary to develop any				_	-	-
whites. whites. The were more likely primary to develop any				tobacco than	Hispanic	•
primary to develop any				whites.		-
					primary	
outcomes   complication					-	complication
were in the Odds Ratio [OR]						-
differences in $= 1.15, 95\%$					differences in	`
demographic confidence						
characteristics interval [CI] 1.01-						interval [CI] 1.01-

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

		comorbidities, perioperative characteristics , THA utilization, length of stay (LOS), and 30-day adverse events including mortality, readmission, reoperation and complications .	1.30) including medical complications (OR = 1.2, 95% CI 1.00-1.45) and surgical complications (OR = 1.21, 95% CI 1.04-1.40). Hispanics or Latinos were more likely to develop surgical complications (OR = 1.28, 95% CI: 1.00 - 1.64). American Indians or Alaska Natives
		adverse	Hispanics or
		•	•
		_	1 0
		-	-
		-	`
			,
			were more likely
			to undergo
			reoperations (OR
			= 1.91, 95% CI
			1.23-2.97). No
			differences were
			observed in 30-
			day readmission
			or mortality rates
			among the
			different groups.

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Fang M, Hume E, Ibrahim S	Retrospec tive cohort study (3)	The purpose of this investigation was to determine how racial disparities in discharge destination after total knee arthroplasty (TKA) is affected by the initiation of Bundled Payments for Care Improvement (BPCI).	A total of 2,276 patients who underwent primary TKA at the University of Pennsylvania Penn Presbyterian Hospital between 2014 and 2017 were included. 48.2% of patients were white, 43.8% were African American (AA) and 8.0% were classified as other. 62.7% of all patients were female.	The authors analyzed the Vizient database to identify patients who underwent primary TKA from 2014 to 2017 at the University of Pennsylvania Penn Presbyterian Hospital in Pennsylvania, PA. Inclusion criteria included patient who underwent primary TKA and patients age greater than 18 years. Exclusion criteria included patients who underwent emergent surgery, those with acute fracture or active infection and those who underwent bilateral TKA. Paired t tests were used to compare differences in	There was a statistically significant decrease in patient discharge to Skilled Nursing Facility (SNF) over time with 75% of patients undergoing primary TKA being discharged to SNF in 2014 compared to 20% in 2017 (P < 0.05). There was a corresponding increase in discharge to home with or without home health over the same time period (25% 2014 vs. 80% in 2017, P < 0.05). AA patients who underwent TKA were significantly younger than other races (average ages of AA, white, and other were 61.9, 64.4, and 64.0, respectively, P < 0.05). AA and other race TKA recipients were more likely to have Medicaid compared to
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RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

			disposition among different races. Linear regression was used to plot trends in discharge destination.	white patients (22.4% vs. 4.3%, P < 0.05). African American TKA patients tended to have more diabetes mellitus (DM), congestive heart failure (CHF), and renal failure than white patients. AA patients had significantly higher discharge to SNF than whites and others (49.5% vs. 30.1% and 34.6%, P < 0.05). Compared to AA patients, white patients and those of other race/ethnicity were more likely to be discharged to home with or without home health services (59.7% and 58.7% vs 42.2%, P < 0.05). 90-day readmissions rates were 5.5% for AA patients, 3.4% for white patients, and 3.3% patients who classified as other. Surgical causes of readmission were significantly
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Race, Utilization, and Outcomes in Total Hip and Knee Arthroplasty. A Systematic Review on Health-Care Disparities

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					higher in white patients compared to AA patients or other (45.9% vs. 21.8% and 16.7%, P < 0.05). There was no difference in mortality among white, AA, and other race. The average length of stay for white patients was significantly lower than for AA and other race/ethnicity recipients (2.5 days vs. 3.0 and 2.9 days, P < 0.05).
George J, Navale SM, Schiltz NK, et al	Retrospec tive cohort study (3)	This study examines which gender-racial group and age group has the highest rate of AKA from septic and aseptic complications of TKA.	Of all AKAs identified in the database, 9733 AKAs were the result of complications of TKA (septic complications = 8104, aseptic complications = 1629).	The National Inpatient Sample (NIS) data from 2000 to 2011 was used to identify AKAs resulting from complications of TKA. Standardized AKA rates were calculated for different age and gender-racial groups by dividing	After adjusting for age and comorbidities, black men had the highest rate of AKA after TKA (adjusted rate in black men = 578 AKAs per 100,000 TKAs, standardized rate ratio [SRR] = 4.32 [confidence interval {CI}, 3.87–4.82], p<.001). Black men also had the highest rate of AKA after septic

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RACE LITH IZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPI ASTY. A SYSTEMAT

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		the number of	complications of
		AKAs in each	TKA (p<.001).
		group with the	The adjusted rates
		corresponding	of AKA were
		number of	higher in patients
		TKAs.	younger than 50
		Standardized	years (adjusted
		rate ratios	rate = 473, SRR =
		were	3.14 [CI, 2.94–
		calculated	3.36], p<0.001)
		after adjusting	and older than 80
		for	years (adjusted
		demographics	rate = 297, SRR =
		and	1.85 [CI, 1.76–
		comorbidities.	1.95], p<.001).

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http://dx.doi.org/10.2106/JBJS.RVW.21.00161

Goodman SM, Mandl LA, Parks ML, et al	Retrospec tive cohort study (3)	The purpose of this study was to determine if race and socioeconomi c factors at the individual level are	The study cohort consisted of 4035 patients who underwent TKA, were enrolled in a hospital-based registry	The primary outcome was the association of race and socioeconomi c factors on patient-reported	Race, education, patient expectations, and baseline WOMAC scores are all associated with 2-year WOMAC pain and function, however, are not
				reported outcomes after TKA. Baseline data collected on patients included age, sex, BMI, ethnicity (non-Hispanic or Hispanic), race, insurance status (Medicare, Medicaid, or other), and education (some college or above, or no college). Patient reported measures collected included preoperative Hospital for Special Surgery	
				(HSS) Expectations score, baseline and 2-year Knee	

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				Osteoarthritis Outcomes (KOOS) pain score, and KOOS function score from which the Western Ontario and McMaster Universities OA Index (WOMAC) was derived.	
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RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Goodman	Prospectiv	The purpose	A total of	All patients	Mean WOMAC
SM,	e cohort	of this study	4,170 THA	undergoing	pain and function
Mehta B,	study (2)	was to	cases within	THA in a	scores at baseline
Zhang M,	(-)	determine if	the cohort that	single, high-	and 2 years were
et al		socioeconomi	met inclusion	volume	seven points
		c factors such	and exclusion	orthopaedic	lower (worse) for
		as poverty	criteria. 4,025	hospital	blacks than for
		mediates	(97%) of	between 2007	whites (P <
		racial	patients were	and 2011	0.0001).
		disparities in	white and 145	were included	Compared with
		health	(3%) were	within the	blacks and whites
		outcomes	black. The	study.	from wealthier
		after total hip	average age of	Registry data	neighborhoods,
		arthroplasty	white patients	was collected	both blacks and
		(THA) and	who	at baseline	whites from
		confound	underwent	and at 2 years	impoverished
		analyses of	THA was	after THA.	neighborhoods
		differences	65.42 (10.98)	Inclusion	with > 10%
		between	and 61.69	criteria	Medicaid
		blacks and	(11.23) for	included	coverage had
		whites.	black patients.	patients age	worse baseline
		wintes.	Compared	greater than	pain (blacks 52.8
			with whites,	18 years and	versus 43.8 for
			blacks were	had and	whites, $P = 0.02$ ;
			younger, more	identified	whites 55 versus
			likely to be	race. Patients	54.8, P = 0.004)
			female, and	were excluded	and worse
			had higher	if they	baseline function
			BMI, higher	underwent	(blacks 49.06
			hospital	surgical	versus 40.05, P =
			expectations	intervention	0.003; whites
			scores, and	for treatment	58.8 versus 50.8,
			more	of fracture,	P < 0.001).
			comorbidities.	were	Blacks and whites
			Blacks had	undergoing	achieved similar
			lower	revision or	improvements in
			educational	bilateral THA	pain and function
			attainment and	or had	from baseline to 2
			were more	contralateral	years. The change
			likely to be	THA or TKA	in WOMAC pain
			insured by	within 2 years	was 426 24 for
			Medicaid.	of the index	blacks versus 40
			ivicuicaiu.	procedure.	$\pm$ 19 for whites (P
	1			procedure.	17 101 WIIILES (P

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	1	D. C. C.	0.14) 1.1
		Patient	= 0.14), and the
		reported	change in
		outcome	WOMAC
		measures	function was 42 $\pm$
		included the	24 for blacks
		hospital THA	versus $41 \pm 19$ for
		Expectations	whites $(P = 0.35)$ .
		Survey23 and	More blacks than
		the Hip	whites lived in
		Osteoarthritis	neighborhoods
		Outcomes	with 20% or
		Survey	greater of the
		(HOOS), from	population below
		which we	the poverty level
		derived the	(30% versus 3%;
		WOMAC	P < 0.0001), and
		pain and	more blacks than
		function	whites lived in
		scores.	neighborhoods
		Models	with 10%or
		incorporating	greater of the
		individual and	population with
		census tract	Medicaid
		data and	insurance
		analyzed	coverage.
		interactions	Disparities in 2-
		between race	year Western
		and percent of	Ontario and
		population	McMaster
		with Medicaid	Universities
			Osteoarthritis
		coverage and its association	
			Index (WOMAC)
		with 2-year	pain and function
		patient-	were increased in
		reported	communities with
		outcomes.	high census tract
			Medicaid
			coverage. For
			blacks in these
			communities, 2-
			year WOMAC
			function scores
			were predicted to

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		be 25.54 points lower (80.42 versus 85.96) compared with blacks in less deprived communities, a difference not observed among whites.

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Groenevel	Retrospec	To measure	The final	Detailed	Among knee OA
d PW,	tive	these	survey cohort	demographic,	patients (n =
Kwoh CK,	cohort	differences	comprised 909	clinical,	627), the
Mor MK	study (3)	using a well-	primary care	psychological,	unadjusted mean
et al	study (3)	validated	patients with	and social	expectation score
Ct ai		survey	chronic knee	data were	(scale 0-76) for
		instrument	or hip OA who	collected from	African American
		and to	identified	909 male	patients was 48.7
		determine if	themselves as	patients (450	versus 53.6 for
		the		African	
			either white or African		white patients
		differences		American,	(mean difference
		could be	American.	459 white)	4.9, P < 0.001).
		explained by	African	ages 50-79	For hip OA
		racial	American	years with	patients (n =
		variation in	patients were	moderate or	282), the
		disease	younger,	severe	unadjusted mean
		severity,	predominantly	osteoarthritis	expectation score
		socioeconomi	from	(OA) of the	(scale 0-72) for
		c factors,	Philadelphia,	hip or knee	African
		literacy, or	less likely to	receiving	Americans was
		trust.	be married,	primary care	45.4 versus 51.5
			more likely to	at 2 veterans	for whites (mean
			have	affairs	difference 6.1, P
			household	medical	< 0.001).
			incomes below	centers were	Multivariable
			the poverty	reviewed. The	adjustment for
			level, and less	previously	disease severity,
			likely to have	validated	socioeconomic
			received an	Joint	factors,
			associate	Replacement	education, social
			degree or other	Expectations	support, literacy,
			higher	Survey was	and trust reduced
			education	used to assess	these racial
			degree than	expectations	differences to 3.8
			white	for pain relief,	points (95%
			enrollees.	functional	confidence
			More African	improvement,	interval [95% CI]
			American	and	1.2, 6.3) among
			respondents	psychological	knee OA patients
			(42%) than	well-being	and 4.2 points
			white	after joint	(95% CI 0.4, 8.0)
			respondents	replacement	among hip
			(32%) reported	1 opiacomoni	patients.
	l	I .	(3270) reported	<u> </u>	patients.

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			receiving disability payments due to their knee/hip OA (P < 0.001)		
Gungor S, Fields K, Aiyer R, et al	Retrospec tive cohort study (3)	To estimate the risk of developing moderate-to-severe persistent postsurgical pain (PPP) after primary total knee arthroplasty (TKA)	Patients with and without minimum a 3-month postoperative NRS pain score were mostly similar with respect to baseline NRS pain scores, demographics, and comorbidities. Exceptions included patients with postoperative follow-up data	Data were collected via hospital arthroplasty registry and chart review. The risk of moderate-to-severe PPP, defined as ≥4 on the numerical rating scale (NRS) at minimum of 3 months post-surgery, was calculated. Multivariable	The risk of PPP after TKA was 31.3% (95% confidence interval [CI]: 27.5-35.0) (n = 578). Every 2-point increase in baseline NRS was associated with 1.66 (95% CI: 1.37-2.03) times the odds of developing PPP (P < .001). African Americans (vs whites) had 1.82 (95% CI: 1.03-

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with better	logistic	3.22) times the
ASA status,	regression	odds of
were less	was used to	developing PPP
likely to use	estimate the	(P = .040).
tobacco, more	association of	Exploratory
likely to have	patient	analysis
had	demographics	suggested that the
simultaneous	, diagnoses,	adductor canal
bilateral TKA,	length of	saphenous nerve
and had	hospital stay,	(vs femoral
slightly longer	and	nerve) blocks
lengths of	preoperative	were associated
hospital stay.	NRS with the	with 2.87 (95%
	odds of	CI: 1.00-8.26)
	developing	times the odds of
	PPP.	developing PPP
	Exploratory,	(P = .049)
	simple	
	logistic	
	regression	
	was used to	
	estimate the	
	association of	
	perioperative	
	factors with	
	the odds of	
	developing	
	PPP on a	
	subset of	
	patients (n =	
	72)	

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/	tive cohort study (3)	temporal trends, primary indications, patient-level demographics , region and hospital type for all patients receiving primary total knee arthroplasty between 2009 and 2015.	total of 4,283,387 TKA procedures performed from 2009 to 2015, 62.3% of which were women. Median age was 66 years old.	Inpatient Sample Database (NIS) was used to identify all patients who underwent a TKA between 20019 and the third quarter of 2015. Various analyses were used to assess trends, explore categorical variables, and continuous variables in the data set. Patient-level demographics included in the study were age, race, gender, health status, and median income quartile.	increased between 2009 and 2015 (p<.001). Primary osteoarthritis was the primary indication in 98% of cases. There was an increase in minority representation among recipients, the most being in Black patients (+2.3%, p<.001). Black TKA recipients were younger and had lower median age adjusted Charlson Comorbidity index (CCI) (p<.001). Black recipients were most likely to be of the lowest 25% of median income than any other race (p<.001). The Midwest demonstrated the greatest increase in TKAs performed per 100,000 between
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Hanchate AD, Zhang Y, Felson DT, et al	Retrospec tive cohort study (3)	The purpose of this study is to estimate national total knee arthroplasty (TKA) rates by economic factors, and the extent to which differences in insurance coverage, income, and assets contribute to racial and ethnic disparities in TKA use.	The study included 55,469 personyear observations from 18,439 patients, 57% of which were women, and 14% were non-Hispanic Black. 663 patients had a TKA between 1998 and 2004.	Longitudinal Health and Retirement Study data was used for analysis. The primary outcome is a binary indicator of whether a patient received a primary TKA in the survey period. Access to health insurance was categorized in 7 groups, income was summed from all sources, and key demographics collected	After adjusting for economic factors, racial/ethnic differences in TKA rates for women did not occur. Compared to white men, there remained a large deficit for black men (p<.05). Among patients between ages 47-64, compared with the privately insured, those who were uninsured were less likely (95% CI 0.4-0.92) and those with Medicaid were more likely (95% CI 1.03-2.26) to receive their first
				demographics	CI 1.03-2.26) to

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	I _	· ·	۱	1	
Hausmann LRM,	Retrospec	To examine black-white	Compared to white veterans,	Data were from the VA	Authors identified
	tive				12,087 total knee
Brandt	cohort	and Hispanic-	black and	Musculoskelet al Disorders	arthroplasty
CA, Carroll	study (3)	white	Hispanic		procedures in a
		differences in	veterans were	cohort, which	sample of
CM, et al		total knee	younger; more	includes data	473,170 white,
		arthroplasty	likely to have	from	50,172 black, and
		from 2001 to	CCI scores ≥3;	electronic	16,499 Hispanic
		2013 in a	and more	health records	veterans. In
		large cohort	likely to have	of more than	adjusted models
		of patients	depression,	5.4 million	examining black-
		diagnosed	PTSD, and	veterans with	white and
		with	alcohol use	musculoskelet	Hispanic-white
		osteoarthritis	diagnoses.	al disorders	differences by
		(OA) in the Veterans	Compared to whites or	diagnoses. We included	year of OA
				white (non-	diagnosis, total
		Affairs (VA) health care	Hispanics, blacks were	Hispanic),	knee arthroplasty rates were lower
			more likely to	black (non-	for black than for
		system	be female,	Hispanic), and	white veterans
			have drug use	Hispanic (any	
			_	race) veterans,	diagnosed in all but 2 years. There
			diagnoses, and report severe	age $\geq$ 50 years,	were no
			pain intensity,	with an OA	Hispanic-white
			and were less	diagnosis	differences
			likely to be	from 2001-	regardless of
			overweight or	2011 (n =	when diagnosis
			obese (defined	539,841).	occurred. These
			`	Veterans were	
			as BMI >25)	followed from	patterns held in
				their first OA	the specialty clinic subsample.
					cimic subsample.
				diagnosis	
				until	
				September 30,	
				2013. As a	
				proxy for	
				increased clinical	
				severity,	
				analyses were	
				also	
				conducted for	
				a subsample	

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restricted to
those who
saw an
orthopedic or
rheumatology
specialist (n =
148,844). We
used Cox
proportional
hazards
regression to
examine
racial and
ethnic
differences in
total knee
arthroplasty
by year of OA
diagnosis,
adjusting for
age, sex, body
mass index,
physical and
mental
diagnoses,
and pain
· , · · ,

intensity scores.

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Hausmann	Dragnativ	The numerose	A total of 457	Dationts agad	The overall rate
LRM,	Prospectiv e cohort	The purpose of this		Patients aged 50 or older	of TJR
			patients who	who were	
Mor M,	study (2)	investigation	were seeking treatment for	referred to the	recommendation
Hanusa		was to			was 19.5% (n =
BH, et al		examine	knee or hip	orthopaedic	89). The odds of
		whether	osteoarthritis	surgery clinic	receiving a
		orthopaedic	(OA) in	of two large,	recommendation
		surgeons are	Veterans	tertiary care	for TJR were
		less likely to	Affairs (VA)	VA hospitals	lower for AA
		recommend	orthopaedic	in Pittsburgh,	than white
		total joint	clinics. 120	PA and	patients (Odds
		replacement	(26.3%) were	Cleveland,	Ratio [OR] =
		(TJR) to	African	OH for	0.55, 95% CI
		African	American and	management	0.32-0.93, P =
		American	337 (73.7%)	of chronic hip	0.03). This
		(AA) patients	were white.	or knee pain	difference
		compared to	AA patients	between 2005	persisted after
		white patients	were younger,	and 2008	adjusting for age,
		with similar	reported lower	were	WOMAC Index,
		clinical	incomes, were	included.	and whether
		indications	less likely to	Inclusion	patients were
		and whether	be married or	criteria were	being treated for
		there are	living with a	patients had to	hip (vs. knee)
		racial	partner, and	have chronic,	osteoarthritis (OR
		differences in	were more	frequent knee	= 0.46, 95%  CI
		the receipt of	likely to live	or hip pain	0.26-0.83, P =
		TJR.	alone ( $P < 0.01$	based on the	0.01). This
			for each). AA	Arthritis	difference was
			patients were	Supplement	not significant
			also less likely	of the	after adjusting for
			than white	National	patient preference
			patients to	Health and	for TJR ( $OR =$
			have adequate	Nutrition	0.69, 95% CI
			health literacy	Examination	0.36–1.31, P =
			and reported	Survey	0.25). 10.3% (n =
			less social	(NHANES)	47) underwent
			support, less	questions.	hip or knee TJR
			trust in their	They also had	within six months
			orthopedic	to have	of study
			surgeons, and	significant	enrollment.
			lower quality	pain and	Fewer AA
			of life on the	functional	patients had
			mental	difficulty	undergone TJR

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	component of	related to	within 6 months
	the Short Form	osteoarthritis,	of study
	12 (SF-12) (P	defined as a	enrollment when
	< 0.01 for	score of 39 or	compared to
	each).	higher	white patients of
		(possible	similar age and
		range 0–100)	disease severity
		on the	(OR = 0.41, 95%)
		Western	CI = 0.16-1.05, P
		Ontario and	= 0.06). This
		McMaster	difference
		Universities	became
		Osteoarthritis	insignificant after
		(WOMAC)	adjusting for
		Index.	whether the
		Exclusion	patient had
		criteria	received a
		included	recommendation
		patients who	for the procedure
		had	at the index visit
		previously	(OR = 0.57, 95%)
		undergone	CI 0.21–1.54, P =
		total joint	0.27).
		replacement	
		(TJR) or had	
		been	
		diagnosed	
		with	
		inflammatory	
		arthritis. AA	
		and white	
		patients were	
		compared	
		with respect	
		to	
		sociodemogra	
		phic and	
		clinical	
		characteristics	
		. Logistic	
		regression	
		analysis was	
		used to	
		useu io	

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		examine the relationship between race and each outcome.	

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Hawkins	Retrospec	The purpose	2.2 million	Patients were	Males were more
K, Escoto	tive	of this study	patients were	selected into	likely than
KH,	cohort	was to	eligible for the	the study if	females to receive
Ozminko	study (3)	determine if	study, 529,652	they had one	a replacement
wski RJ,		disparities	(24%) of	or more health	surgery by 6%
et al		exist within	which had	care claims	(p<.001). Patients
		osteoarthritis	osteoarthritis	with a	in minority
		patients with	(OA). Of	primary	(p<.001) or lower
		AARP-	these, 6.1%	diagnosis of	income
		branded	received a total	OA at any	neighborhoods
		Medicare	hip	time from	(p<.001) were
		supplement	arthroplasty	7/1/2006 to	less likely to
		plan coverage	(THA) or total	6/30/2007.	receive a THA or
		provided by	knee	Various	TKA. The largest
		UnitedHealth	arthroplasty	analyses were	disparities existed
		care.	(TKA). 70% of	used to	by residential
			OA patients	describe	location and
			were female,	patients and	comorbid
			and 77% were	their	condition.
			between ages	utilization of	
			65-84 years	hip or knee	
			old.	replacement	
				surgery, and	
				eliminate	
				confounding	
				effects of	
				variables such	
				as	
				demographics	
				,	
				socioeconomi	
				cs, and health	
				status.	

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Hinman AD, Chan PH, Prentice HA, et al	Retrospec tive cohort study (3)	The purpose of this investigation was to determine whether racial or ethnic disparities persist within a universally insured population of patients who received a total knee arthroplasty (TKA).	A total of 129,402 patients who received a total knee arthroplasty were included within the study. 68.8% of the patients were white, 16.2% were Hispanic, 8.4% were black and 6.6% were Asian.	The authors analyzed the United States (US) integrated health system's total joint replacement registry to identify patients age greater than 18 who underwent elective TKA from 2000 to 2016. Cases were excluded if they involved revision surgeries, prior surgery to the affected knee, prior infection involving the affected joint, same-day bilateral procedures or staged procedures occurring within 90	When compared to white patients, Asian (hazard ratio [HR] = 0.70, 95% Confidence Interval [CI] 0.60-0.83, P < 0.001) and Hispanic patients (HR = 0.85, 95% CI 0.77-0.95, P = 0.003) had a lower risk of all-cause revision, while black patients had a higher risk of all-cause revision (HR = 1.34, 95% CI 1.20-1.49, P < 0.001). When looking at aseptic and septic revision specifically, Asian patients had a lower risk of both aseptic (HR = 0.67, 95% CI 0.54-0.83, P < 0.001) and septic revision (HR = 0.78, 95% CI 0.60-0.99, P = 0.049). Hispanic patients had a
				procedures or staged procedures occurring	revision (HR = 0.78, 95% CI 0.60-0.99, P = 0.049). Hispanic
				within 90 days of each other. Racial and ethnic differences in	patients had a lower risk of septic revision (HR = 0.69, 95% CI 0.57-0.83, P <
				revision rates and 90-day postoperative	0.001) and black patients had a higher risk of

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		events	aseptic revision
		including	(HR = 1.61, 95%)
		readmission	CI 1.42-1.83, P <
		rates,	0.001). Asian
		The state of the s	patients had a
		emergency	lower likelihood
		department	
		(ED) visits,	of 90-day
		infection, venous	unplanned readmission
		thromboembo	
			(Odds Ratio [OR]
		lism, and	= 0.89, 95% CI
		mortality	0.79-1.00, P =
		were analyzed	0.046) and 90-day
		using Cox	VTE (OR = $0.59$ ,
		proportional	95% CI 0.45-
		hazard and	0.78, P < 0.001
		logistic	when compared
		regression models.	to white patients.
		models.	Black patients had a higher
			likelihood of
			readmission (OR = 1.13, 95% CI
			1.02- 1.24, P =
			· ·
			0.015) and 90-day
			ED visit (OR = 1.31, 95% CI
			1.23-1.39, P <
			.001) when
			compared to
			white patients.
			Hispanic patients
			also had a higher
			likelihood of
			post-operative ED
			visits (OR = 1.28,
			95% CI 1.22-
			1.34, P < 0.001,
			but a lower
			likelihood of 90-
			day deep
			infection (OR =
			0.42, 95% CI
	1		0.72, 73/0 CI

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					0.30-0.59, P < 0.001) when compared to white patients. No difference was observed for mortality when comparing minority patients to white patients.
Ibrahim SA, Hanusa BH, Hannon MJ, et al	Randomiz ed controlled trial (1)	To examine the efficacy of a patient-centered educational intervention on patient willingness and the likelihood of receiving a referral to an orthopedic clinic.	There were no statistically significant differences between study arms in the following characteristics: Age, gender, educational level, employment status, living situation, household income, receipt of disability payment, arthritis self-efficacy	A total of 639 African American patients with moderate-to- severe knee OA from 3 Veterans Affairs primary care clinics were enrolled in a randomized, controlled trial with a 2 × 2 factorial design. Patients were shown a knee OA decision-	At baseline, 67% of the participants were definitely/probabl y willing to consider knee replacement, with no difference among the groups. The intervention increased patient willingness (75%) in all groups at 1 month. For those who received the decision aid intervention alone, the gains were sustained

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scores, health	aid video with	for up to 3
literacy level,	or without	months. By 12
severity of	brief	months
disease using	counseling.	postintervention,
the WOMAC	The main	patients who
index, quality	outcome	received any
of life using	measures	intervention were
the SF-12,	were change	more likely to
trust in	in patient	report engaging
physician or	willingness	their provider in a
index of	and receipt of	discussion about
comorbidity	a referral to	knee pain (92%
	an orthopedic	versus 85%), to
	clinic. Also	receive a referral
	assessed were	to an orthopedic
	whether	surgeon (18%
	patients	versus 13%), and
	discussed	for those with a
	knee pain	referral, to attend
	with their	an orthopedic
	primary care	consult (61%
	provider or	versus 50%). An
	saw an	educational
	orthopedic	intervention
	surgeon	significantly
	within 12	increased the
	months of the	willingness of
	intervention.	African American
		patients to
		consider knee
		replacement.

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Ibrahim	Cross-	The purpose	A total of 600	The authors	AA and white
SA,	sectional	of this study	AA and white	performed a	patients in this
Siminoff	study (4)	was to	male patients	cross-	cohort were
LA,	<b>3</b> ( )	determine if	age greater	sectional	similar with
Burant CJ,		African	than 50 years	survey of	respect to severity
et al		American	with moderate-	elderly, male,	of arthritis on the
		(AA) patients	to-severe	AA and white	Lequesne Scale
		differ from	symptomatic	patients with	(mean $\pm$ SD, 11 $\pm$
		white patients	knee or hip	moderate-to-	4 versus $11 \pm 4$ , P
		with respect	osteoarthritis	severe	= 0.22) and the
		to their	(OA) who	symptomatic	WOMAC (mean
		overall	were receiving	knee or hip	$\pm$ SD, $46 \pm 17$
		familiarity	primary care at	osteoarthritis	versus $45 \pm 17$ , P
		with joint	the	(OA) who	= 0.32), and
		replacement	Department of	were	scores on the
		as an option,	Veteran	receiving	Charlson
		their	Affairs (VA)	primary care	Comorbidity
		perceptions	outpatient	at the	Index (mean ±
		of the risks	clinics	Department of	SD, $2.3 \pm 2$
		and benefits	between 1997	Veteran	versus $2.5 \pm 2$ , P
		associated	and 2000 were	Affairs (VA)	= 0.24) and the
		with the	included. AA	outpatient	GDS (mean $\pm$ SD
		procedure,	and white	clinics	$4.5 \pm 3.4 \text{ versus } 5$
		and their	patients in this	between 1997	$\pm$ 3.8, P = 0.07).
		"willingness"	cohort were	and 2000.	AA patients were
		to consider	similar with	Inclusion	less likely than
		joint	respect to age	criteria	white patients to
		replacement	(mean $\pm$ SD,	included	have ever heard
		and to	$65 \pm 10$ years	patients being	of joint
		determine the	versus $66 \pm 19$	older than 50	replacement (81%
		factors that	years, P =	years of age	versus 87%), but
		influence this	0.50). African	and endorsing	this difference
		relationship.	Americans	moderate-to-	was not
		_	were less	severe pain	statistically
			likely to be	for greater	significant (P =
			employed (8%	than 6 months	0.065). They
			versus 15%, P	(evaluated on	were less likely
			= 0.01) or	the basis of	than white
			married (39%	the Lequesne	patients to have
			versus 56%, P	Scale). The	had family or
			< 0.001) or to	survey sought	friends who had
			have attained a	to assess	undergone joint
			high school	patients'	replacement (52%

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1	C '1' '4	700/ D 4
education	familiarity	versus 78%, P <
(43% of	with joint	0.001) or to
African	replacement	report a good
Americans	surgery for	understanding of
versus 29% of	OA, outcome	joint replacement
whites had not	expectations,	as a form of
graduated high	and patient	treatment (44%
school, P <	"willingness"	versus 61%, P <
0.001) and	to consider	0.001). AA
were more	joint	patients were
likely to report	replacement.	more likely than
an annual	The Western	whites to believe
household	Ontario and	that the hospital
income of <	McMaster	course after
\$10,000 (41%	Universities	surgery could last
versus 20%, P	(WOMAC)	for > 2 weeks
< 0.001).	Index was	(45% versus
< 0.001).	used to assess	18%; P < 0.001).
	severity of OA. The	AA patients were
		more likely than
	Charlson	whites to expect
	Comorbidity	moderate or
	Index was	extreme pain
	used to assess	(62% versus
	overall	42%; P < 0.001)
	disease	and moderate-to-
	burden and	extreme difficulty
	the Geriatric	with walking
	Depression	(64% versus
	Scale was	39%; P < 0.001)
	used to screen	following joint
	for depression	replacement.
	within each	When asked
	patient.	whether they
	Baseline	would consider
	comparisons	hip or knee
	between AA	replacement
	and white	surgery if their
	patients in the	pain were to
	sample were	become more
	performed	severe and the
	using the chi-	doctor
	square test for	recommended it,
	square test 101	recommended it,

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		categorical variables and the t-test for continuous, normally distributed variables. Bivariate associations between individual study outcome measures and ethnicity were examined using multivariate logistic regression models.	AA patients were more likely than white patients to respond "no" (Odds Ratio [OR] = 0.50, 95% Confidence Interval [CI] 0.30–0.84). After adjusting for outcome expectations postoperatively, the difference between AA and white patients in their "willingness" to consider joint replacement was no longer statistically significant suggesting that those differential expectations of postsurgical hospital course, pain, and function mediated the observed difference in the patient's "willingness" to undergo hip or
			undergo hip or knee replacement surgery.

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Ibrahim	Datus :::: -	To examine	Tl	Ilaina	A dissate d
	Retrospec		The mean ages	Using	Adjusted rates of
SA, Stone	tive	racial/ethnic	of the patients	information	both non-
RA, Han	cohort	differences in	who	from the	infection-related
X, et al	study (3)	mortality and	underwent	Veterans	and infection-
		morbidity	knee and hip	Administratio	related
		following	arthroplasty	n National	complications
		elective knee	were 66 years	Surgical	after knee
		or hip	and 63 years,	Quality	arthroplasty were
		arthroplasty	respectively.	Improvement	higher among
			Both	Program	black patients
			subgroups	database, data	compared with
			were	on 12,108	white patients
			predominantly	patients who	(relative risk
			white, with	underwent	[RR] 1.50, 95%
			black patients	knee	confidence
			comprising	arthroplasty	interval [95% CI]
			11.3% of the	and 6,703	1.08-2.10 and RR
			knee	patients who	1.42, 95% CI
			arthroplasty	underwent hip	1.06-1.90,
			and 16.8% of	arthroplasty	respectively).
			the hip	over a 5-year	Hispanic patients
			arthroplasty	period were	had a
			patients.	analyzed.	significantly
			Hispanics	Racial/ethnic	higher risk of
			comprised	differences	infection-related
			<5% of each	were	complications
			subgroup. This	determined	after knee
			VA population	using	arthroplasty (RR
			included very	prospectively	1.64, 95% CI
			few women.	collected data	1.08-2.49)
			Twenty-one	on patient	relative to
			percent of the	characteristics	otherwise similar
			knee	, procedures,	white patients.
			arthroplasty	and short-	Race/ethnicity
			patients and	term	was not
			30.6% of the	outcomes.	significantly
			hip	The main	associated with
			arthroplasty	outcome	the risk of non-
			patients were	measures	infection-related
			current	were risk-	complications
			smokers.	adjusted 30-	(RR 0.97, 95% CI
				day mortality	0.68-1.38 in
				and	blacks; RR 1.18,
	1		l	unu	oracks, 100 1.10,

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Inneh IA, Clair AJ, Slover JD, et al	$\frac{1}{n}$	95% CI 0.60-2.30
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		in Hispanics) or
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	i	infection-related
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination that influence discharge discharge discharge discharge discharge destination that influence discharge discharge discharge discharge discharge discharge destination that influence discharge di	c	complications
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination that influence discharge discharge discharge discharge discharge destination that influence discharge discharge discharge discharge discharge discharge destination that influence discharge di		(RR 1.27, 95% CI
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	`	0.91-1.78 in
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	b	blacks; RR 1.22,
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	9	95% CI 0.63-2.36
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	i	in Hispanics)
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	a	after hip
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	a	arthroplasty. The
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	C	overall 30-day
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	n	mortality was
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	0	0.6% following
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	k	knee arthroplasty
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge	a	and 0.7%
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		following hip
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		arthroplasty, with
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		no significant
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		differences by
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		race/ethnicity
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		observed for
Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  Clair AJ, Slover JD, et al tive cohort study (3) the factors that influence discharge destination following TJA.  The factors that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge destination following that influence discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge discharge discharge destination socioeconomic that influence discharge din the discharge discharge discharge discharge discharge discharge		either procedure.
Slover JD, et al  study (3)  is to analyze the factors that influence discharge destination following TJA.  is to analyze the factors that influence discharge destination following TJA.  socioeconomic status, and 2770 (35%) c, geograph were of nonwhite race/ethnicity.  race/ethnicity.  single institution between 20 and 2014 v analyzed.  Evaluation socioeconomic status, and racial/ethnicity.  race/ethnicity.		A total of 5088
et al study (3) the factors that influence discharge destination following TJA.  the factors that influence discharge destination following TJA.  the factors that influence discharge destination following TJA.  the factors that influence discharge destination between 20 and 2014 very analyzed.  Evaluation socioeconomic status, and 2770 (35%) c, geograph were of nonwhite racial/ethnicity.  factors associated with discharge destination either hom	,	(64%) cases were
that influence discharge destination following TJA.  that influence discharge destination were of low socioeconomic status, and 2770 (35%) c, geograph were of nonwhite race/ethnicity.  that influence discharge destination either hom		discharged to
discharge destination following TJA.  TJA.  discharge destination following socioeconomic status, and 2770 (35%) c, geograph were of and nonwhite race/ethnicity.  Tace/ethnicity.  discharge were of low analyzed. Evaluation socioeconomic status, and racial/ethnicity factors associated with discharge destination either hom		home and 2836
destination following TJA.  were of low socioeconomic trace/ethnicity.  destination following socioeconomic status, and socioeconomic c, geograph were of and nonwhite race/ethnicity.  factors associated with discharge destination either hom	`	(36%) cases were
following TJA.  socioeconomic status, and socioeconomic 2770 (35%) were of and nonwhite race/ethnicity.  factors associated with discharge destination either hom		discharged to
TJA.  status, and socioecond c, geograph were of and nonwhite race/ethnicity.  factors associated with discharge destination either hom		institution.
2770 (35%) c, geograph were of and nonwhite race/ethnicity. factors associated with discharge destination either hom		Significant
were of nonwhite racial/ethnicity. factors associated with discharge destination either hom		predictors of
nonwhite racial/ethnicity. factors associated with discharge destination either hom		discharge to an institution include
race/ethnicity. factors associated with discharge destination either hom		low and middle
associated with discharge destination either hom		SES (odds ratio
with discharge destination either hom		`
discharge destination either hom		
destination either hom		
either hom		
		• *
institution		-
		1.10-1.44, p=
	to 1 or 1	[OR]: 1.27, 95% confidence interval [CI]: 1.02-1.57, p= .029; and OR: 1.26, 95% CI:

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		was	.001), age (OR:
		performed.	1.05, 95% CI:
		-	1.049-1.060, p<
			.001), female
			gender (OR: 1.69,
			95% CI: 1.52-
			1.89, p< .001)
			and TKA
			procedure (OR:
			1.48, 95% CI:
			1.33-1.64, p<
			.001). Patients of
			nonblack race/
			ethnicity were
			more likely to be
			discharged home
			(white OR: 0.84,
			95% CI: 0.72-
			0.98, p=.027;
			other OR: 0.80,
			95% CI: 0.67-
			0.95, p=.009).

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I.i. NID	D -4	T1	A 4-4-1 C	T1/1	T1 CTIZ A
Jain NB,	Retrospec	The purpose	A total of	The authors	The rates of TKA
Higgins	tive	of this	443,008	analyzed the	increased with
LD,	cohort	investigation	patients who	National	age, with more
Ozumba	study (3)	was to	underwent	Inpatient	than half of TKAs
D, et al		determine	primary total	Sample (NIS)	performed in
		whether total	knee	database to	patients > 70
		knee	arthroplasty	identify	years of age, for
		arthroplasty	within the	patients who	each of the 3 time
		(TKA) rates	United States	underwent	periods analyzed.
		increased in	(US) were	primary TKA	The overall rates
		younger	included.	from 1990-	of TKA increased
		adults and	89.8% of	2000. The	from 40.4 per
		older adults,	patients were	study period	10,000 persons to
		whether	white, 5.7%	from 1990 to	54.7 per 10,000
		utilization of	were black and	2000 was	persons between
		TKA	2.9% were	divided into 3	1990 and 2000
		increased	Hispanic.	time periods	for the $> 70$ years
		among	62.8% of	(1990–1993	age group. The
		minorities	patients were	[period I],	increased rate of
		and whether	female. The	1994–1997	TKA were similar
		more patients	average	[period II],	among patients
		underwent	follow-up for	and 1998–	60–64 and 65–69
		surgery at	patients within	2000 [period	years of age. The
		high-volume	the study was	III]). Bivariate	proportion of 50–
		hospitals.	3.6 years.	analyses of	59-year-old
		1		demographic	patients
				and procedure	undergoing TKA
				outcome	showed a
				variables	significant
				within the 3	increase of 53.7%
				time periods	between periods I
				were	and III. The rate
				performed	per 10,000
				using means,	persons for this
				medians, and	age group
				proportions	increased from
				(%).	6.2 to 14.2
				Multivariable	between 1990 and
				logistic	2000. The
				regression	disparity between
				analyses were	races gradually
				conducted to	decreased from
				assess the	
	]			assess the	period I to period

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		relative	III. White patients
		change in	comprised 93%
		each of the	of TKA recipients
		demographic	in period I which
		and procedure	decreased to
		outcome	87.5% in period
		variables for	III. Black patients
		period III,	accounted for
		using period I	4.2% of TKAs in
		as reference	period I and
		and	increased to 6.5%
		controlling for	in period III.
		period II and	Hispanic patients
		other potential	accounted for
		confounders.	1.8% of TKAs in
			period I and
			increased to 3.8%
			in period III.
			Hospitals
			performing < 40
			and 40–99 TKAs
			per year
			represented
			16.5% and 32.7%
			of the total cases
			in period I, which
			decreased to
			10.4% and 22.7%
			in period III.
			Hospitals in
			higher-volume categories of
			200–399 and >
			400 TKAs per
			year had increases
			of 43.3% and
			443.8% in the
			amount of TKA
			procedures
			performed. The
			proportion of
			TKAs performed
 			in urban teaching

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Pa	σe	81	

					hospitals increased from 28.5% in period I to 40.1% in period III. Mortality significantly decreased from period I to period III by 33.3%, and length of stay was reduced by half from period I to period III (8.6 ± 4.3 days vs. 4.3 ± 2.2 days). The rate of discharge to an inpatient facility after surgery increased from period I to period II (27.1% to 44.1%), and there was a further increase in this rate in period III (to 51.4%).
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Johnson	Datagas	The mumace	A total of	The authors	12,604 (10.74%)
	Retrospec	The purpose of this			
MA,	tive		117,389	analyzed data from the	experienced
Sloan M,	cohort	investigation	patients	American	serious medical
Lopez VS,	study (3)	was to assess	undergoing		morbidity, with a
et al		if post-	THA for	College of	total of 157
		operative	treatment of	Surgeons	(0.13%) deaths
		outcomes	osteoarthritis	National	within 30 days of
		following	(OA) were	Surgical	surgery. Serious
		total hip	identified.	Quality	morbidities
		arthroplasty	104,693	Improvement	included surgical
		(THA) vary	(89.18%)	Program	site infection (n =
		by racial	identified as	(NSQIP) to	11, 0.01%),
		groups.	Non-Hispanic	identify	respiratory
			White, 9,968	patients who	dysfunction (n =
			(8.49%) as	underwent	208, 0.18%),
			Black, 905	THA for	cardiac
			(0.77%) as	treatment of	complications (n
			Hispanic and	OA from	= 1,106, 0.94%),
			1,823 (1.55%)	2008 to 2016.	postoperative
			as Asian.	The primary	anemia requiring
				outcome	transfusion (n =
				measures of	11,412, 9.72%),
				this study	or sepsis
				included	diagnosis (n =
				death or	342, 0.29%).
				serious	Blacks were more
				morbidity	likely to
				including	experience death
				surgical site	or a serious
				infection,	morbidity (n =
				cardiac	1,273, 13.12%, P
				complication	< 0.001) as a
				requiring	result of their
				intervention,	surgery when
				respiratory	compared to non-
				complication	Hispanic Whites
				requiring	(n = 10,961,
				intervention,	10.79%, P <
				postoperative	0.001). Non-
				blood	Hispanic Whites
				transfusion,	(n = 75,532,
				sepsis, deep	76.86%, P <
					0.001) have
				venous	0.001) Have

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				thrombosis (DVT), or pulmonary embolus (PE) within 30 days of surgery. Univariate analysis was performed using Chisquare or Fischer's Exact test to compare categorical data and t-test to compare means for continuous data.	higher discharge rates to home when compared to the Black (n = 6,617, 70.07%, P < 0.001) and Hispanic (n = 625, 72.93%, P < 0.001) groups.
Jones A, Kwoh CK,	Retrospec tive	Is there a racial	The study sample	The primary outcome of	In both cohorts, African American
Kelley	cohort	disparity in	included all	the study was	patients were
ME, et al	study (3)	knee arthroplasty	VA outpatients during the	TKA (total knee	significantly less likely than white
		utilization	fiscal year	arthroplasty)	patients to have
		within the	1999 who were	within a 2-	received TKA
		Veteran's	50 or more	year follow-	within 2 years
		Health	years of age	up period.	from initial visit
		Administratio	and had a	The primary	(odds ratio [OR]
		n patient population?	diagnosis of osteoarthritis	predictor variable was	0.72, 95% confidence
		population:	(OA). The	race, defined	interval [CI] 0.65-
			total number of	as African	0.80 in the overall
			patients with	American	OA cohort, and
			valid race data	verses non-	OR 0.72, 95%
			was 260,856	Hispanic	CO 0.63-0.81 in
			(85.7% of	white. The	the subspecialty
			which were white). The	proportion of Hispanic	cohort).
			number of	patients with	
			patients with	osteoarthritis	

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valid race data who were referred to rheumatology or orthopaedics specialty clinic was 46,207 (85.5% of which were white). The mean age for	in the sample was too small for meaning full comparison, therefore this group was excluded in the analysis. Data on comorbidities were collected	
mean age for African American and	were collected as well.	
white patients was 64.7 and		
67.0 years old, respectively. Females		
consisted of 3% of the		
white and 2% of the African		
American patients.		

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Jorgenson	Retrospec	The purpose	129,522	The	Patients under 65
ES,	tive	of this study	patients	Pennsylvania	years old had
Richardso	cohort	is to examine	discharged	Health Care	lower rates of
n DM,	study (3)	racial	from 169	Cost	discharge to
Thomasso		variations in	hospitals in	Containment	inpatient rehab
n AM, et		access to	Pennsylvania	Council	facilities (IRFs)
al		post-acute	between 2008	database was	and skilled
		care (PAC)	and 2012 were	used. The	nursing facilities
		and	included in the	primary	(SNFs) versus to
		rehabilitation	study, 56,575	outcome was	home-based rehab
		(rehab)	of which were	the type of	when compared
		services	<65 years old	PAC to which	with those older
		following	and 8,073 of	patients were	than 65.
		elective total	which were	discharged.	Compared to
		knee	Black.	Categories	white patients,
		arthroplasty		included were	African-
		(TKA), and		home with	American patients
		determine if		self-care,	had significantly
		where		home with	higher odds of
		patients are		home	discharge to IRF
		discharged		services,	and SNF
		after surgery		skilled	(p<.001). Odds of
		for		nursing	30-day
		PAC/Rehab		facility (SNF),	readmission were
		is associated		and inpatient	significantly
		with 30-day		rehab facility	higher in patients
		readmission		(IRF). Patient	discharged to
		rates		race was the	IRFs or SNFs
				primary	compared to
				exposure of	those discharged
				interest. 30-	to home care
				day	(p<.0001).
				readmission	
				rates were	
				collected.	

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Kamath AF, Horneff JG, Gaffney V, et al	Retrospec tive cohort study (3)	The purpose of the study was to determine (1) the influence of race, gender, and body mass index (BMI) on primary TKA functional scores and ROM before gender-specific implants; and (2) whether comorbidities influence ROM and functional scores.	202 patients who underwent primary TKAs in 2004 were reviewed. 185 of the 202 patients were contacted, including 90 African Americans, 87 Caucasians, four Asians, and four Hispanics (55 men, 130 women). Their average age was 66 years, and average BMI was 34.4. Minimum follow-up was 24 months	Knee Society scores (KSS) and ROM, patient demographics, and the Charlson Comorbidity Index (CCI) were recorded on all patients. In addition to the standard 10-14 post op visit, all patients were seen routinely at 3, 6,12, and 24 months postoperativel y.	Women had worse ROM at 2 years postoperatively, including lower average flexion and arc ROM (p=.001). African American women had a lower average KSS compared with African American men, other women, and other men (p=.004). African American female status was the only risk factor associated with lower (p = 0.002) functional knee scores at 2 years. African Americans experienced a difference in 2-year KSSs when compared with other races: African Americans had a lower average 2-year KSS compared with scores other races (p = 0.001).
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Vim II	Datus	The numerous	A total of	The authors	Chanding
Kim H,	Retrospec	The purpose			Spending
Meath	tive	of this study	747,098 joint	analyzed the	decreased by
THA,	cohort	was to	replacement	100%	\$439 for white
Tran FW,	study (3)	examine	surgeries on	Medicare	patients under
et al		changes in	688,346	inpatient,	CRJ (95%
		joint	patients with	outpatient,	Confidence
		replacement	Medicare from	skilled	Interval [CI] -
		care	2013 to 2017	nursing	\$718\$161, P =
		associated	were included.	facility, home	0.002), but did
		with	442,163	health agency,	not change for
		Medicare's	(64.2%) of	and carrier	black or Hispanic
		Comprehensi	patients were	claims to	patients.
		ve Care Joint	female and	identify	Discharges to
		Replacement	87,286	patients who	institutional post-
		(CJR) model	(12.7%) were	underwent	acute care
		among white,	85 years or	inpatient joint	significantly
		black and	older. A total	replacement	decreased for
		Hispanic	of 440,555	surgeries from	white (-2.5
		patients.	joint	2013 to 2017.	percentage points,
			replacement	Admissions	95% CI -4.7
			surgeries were	and	0.4, P = 0.02,
			include in the	discharges	from a pre-CJR
			pre-CRJ period	between 2013	risk of 46.2%),
			which	and 2015	black (-6.0
			consisted of	were included	percentage points,
			92.9% white	within the	95% CI -9.8
			patients, 4.3%	pre-CRJ	2.2, P = 0.002,
			black patients	cohort and	from a pre-CJR
			and 2.7%	those between	risk of 59.5%)
			Hispanic	2016 and	and Hispanic (-
			patients. Black	2017 were	4.3 percentage
			and Hispanic	included	points, 95% CI -
			patients were	within the	7.6 - 1.0, P =
			younger, more	post-CRJ	0.01, from a pre-
			likely to have	cohort.	CJR risk of
			Medicaid	Exclusion	54.3%) patients.
			coverage, and	criteria	90-day all cause
			more likely to	included	readmission risk
			have more	patients less	decreased for
			chronic	than 66 years	black patients (-
			medical	old, patients	3.1 percentage
			comorbidities	who were	points, 95% CI -
			compared to	Medicare	5.90.4, P =
			compared to	ivicuicale	э.э <b></b> 0. <del>ч</del> , г –

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white patients	eligible due to	0.03, from a pre-
(P < 0.001  for)	a diagnosis of	CJR risk of
all).	End Stage	21.8%).
).	Renal Disease	
	(ESRD),	
	patient who	
	did not	
	identify as	
	white, black	
	or Hispanic	
	and patients	
	who had less	
	than 12	
	months	
	Medicare	
	enrollment	
	prior to or less	
	than 3 months	
	following their index	
	hospitalizatio	
	n. A	
	differences-	
	in-differences	
	framework	
	was used to	
	assess	
	changes in	
	outcomes	
	associated	
	with CRJ for	
	white, black	
	and Hispanic	
	patients.	

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Klemt C, Walker P, Padmanab ha A, et al	Retrospec tive cohort study (3)	The aim of this study is to evaluate the effect of ethnicity on clinical outcomes and complications following revision hip and knee TJA	4424 revision hip and knee TJA patients were evaluated. 183 were African American, 73 were Hispanic, and 51 were Asian.	Statistical analyses were used to identify significant differences in patient demographics and clinical outcomes between Caucasians and various ethnic minorities including African Americans, Hispanics, and Asians.	Compared to white patients, African American patients had a significantly higher BMI (p=.04), ASA score (p=.04), length of hospital stay (p=.06), and postoperative infection rates (p=.04). Hispanics demonstrated a significantly higher BMI (p=.04), when compared with white patients, alongside a significantly higher risk for postoperative infection (p<.01). African American patients had a
					alongside a significantly higher risk for postoperative infection (p<.01). African American patients had a significantly higher ASA score when compared with Hispanics (p=.02) and
					Asians (p=.03), and a significantly increased length of stay (p=.01) as well as a higher risk for postoperative infection (p=.02)

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Vyyol CV	Cross	The saves	A total of 700	The exither	A A matianta vyana
Kwoh CK,	Cross-	The purpose	A total of 799	The authors	AA patients were
Vina ER,	sectional	of this study	patients with	performed a	less willing to
Cloonan	study (4)	was to	knee OA who	cross-	undergo TKR
YK, et al		identify the	receive	sectional in-	compared to
		determinants	medical care	person	white patients (80
		of knee	from the	interview of	% vs. 62 %).
		osteoarthritis	University of	both AA and	Better
		(OA)	Pittsburgh and	white patients	expectations
		patients'	the Veterans	with knee	regarding TKR
		preferences	Affair (VA)	osteoarthritis	surgery outcomes
		regarding	Pittsburgh	who receive	determined
		total knee	Healthcare	care from the	willingness to
		replacement	System Clinics	University of	undergo surgery
		(TKR) by	were included.	Pittsburgh and	in both AA
		race and to	514 (64.3%)	the Veterans	patients (Odds
		identify	were white and	Affair (VA)	Ratio [OR] =
		variables that	285 (35.7%)	Pittsburgh	2.08, 95 %
		may mediate	were African	Healthcare	Confidence
		racial	American	System	Interval [CI]
		differences in	(AA). The	Clinics.	0.91-4.79, P <
		willingness to	average age for	Inclusion	0.001) and white
		undergo	white patients	criteria	patients (OR =
		TKR.	was 64.54 ±	included AA	5.11, 95 % CI
		I KK.			I
			9.39 and 58.68	or white race,	2.31-11.30, P <
			$\pm 8.13$ for	age greater	0.001). Among
			black patients	than 50 years,	AA patients,
			(P < 0.001).	presence of	having a better
			302 (58.8%) of	chronic	understanding of
			white patients	frequent knee	the procedure
			were female	pain,	(OR = 1.80, 95 %)
			while 207	moderate-to-	CI 0.97-3.35, P <
			(72.6%) of	severe knee	0.001), perceiving
			black patients	OA based on	a short hospital
			were female.	Western	course (OR =
			84 (31.7%) of	Ontario	0.81, 95 % CI
			black patients	McMaster	0.58-1.13, P <
			reported	Index	0.001), and
			having an	(WOMAC)	believing in less
			income of <	score,	post-surgical pain
			\$10,000	radiographic	(OR = 0.73, 95 %)
			compared to	evidence of	CI 0.39-1.35, P <
			32 (6.9%) for	knee OA.	0.001) and
			white patients	Exclusion	walking

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(28.5%) black patients reported being disabled compared to 53 (10.4%) for white patients (P < 0.001).	criteria included a history of major joint replacement, terminal illness, inflammatory arthritis or dementia. Interviews sought to determine patients' familiarity with the TKR procedure and willingness to undergo the procedure.	difficulties (OR = 0.66, 95 % CI 0.37-1.16, P < 0.001) also determined willingness.  Among white patients, having a surgical discussion with a physician (OR = 1.96, 95 % CI 1.05-3.68, P < 0.001), not ever receiving surgical referral (OR = 0.56, 95 % CI 0.32-0.99, P < 0.001), and
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Lan RH, Kamath AF	Retrospec tive cohort study (3)	The purpose of this investigation was to better understand the socioeconomic factors that influence hospitalization and post-discharge metrics after joint replacement to identify key areas of improvement in delivering orthopaedic care.	A total of 2869 consecutive patients who underwent total hip (THA) or knee arthroplasty (TKA) were included within the study. 1832 (63.9%) of patients were female, 1349 (47%) were white, 1391 (48.5%) were black, 49 (1.7%) were Asian and 80 (2.9%) were classified as other.	The authors analyzed an institutional administrative data set from an academic arthroplasty referral center to identify patients who underwent THA or TKA from 2007 to 2015. Univariate and stepwise forward logistic regression analyses were used to determine the relationship between the independent variables of gender, race, and insurance and the dependent variables of institutional care and prolonged LOS.	Females (odds ratio [OR] = 2.07, 95% confidence interval [CI] 1.74-2.46), minorities (OR = 2.11, 95% CI 1.78-2.51), and non-private insurance holders (OR = 1.56, 95% CI, 1.26-1.94) were more likely to be assigned to institutional care after discharge. Minorities (OR = 1.45, 95% CI 1.24-1.70) and non-private insurance holders (OR = 1.43, 95% CI 1.16-1.77) are more likely to exhibit longer length of stay. Mean charges were higher for males when compared to females (\$80,010 vs \$74,855, P < 0.001), as well as total costs (\$19,910 vs \$18,613; P < 0.001). Whites are more likely to hold private insurance than blacks (21.1% vs 11.3%, P < 0.001), as well as
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					Medicare (32.5% vs 17.8%; P < 0.001) and managed care (26.8% vs 13.6%; P < 0.001). Blacks are more likely to hold Medicaid than whites (28.3% vs 10.5%) as well as managed Medicare (27.1% vs 6.6%; P < .001).
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Lasater KB, McHugh MD	Retrospec tive cohort study (3)	To examine racial differences in readmissions of older adult TJA patients, to determine the relationship between nurse staffing and readmission, and to study whether the relationship between staffing and readmission differs for older black and white adults.	A total of 106,848 patients aged 65 and older undergoing elective TJA at 483 nonfederal acute care hospitals in California, Florida, New Jersey, and Pennsylvania were included in the study. A total of 22,664 direct care registered nurse survey respondents working at 483 hospitals were included.	Primary outcome was unplanned readmission within 30 days of discharge. Race was the independent variable of interest to examine the effect of race on readmission rates. Nurse staffing was the independent variable of interest to examine the effect of nurse workload on readmission rates.	After adjusting for patient and hospital level factors, older black patients had 40% greater likelihood of readmission compared to white patients (p<.001). Each additional patient per nurse was associated with 8% greater odds of readmission for older white patients (p<.05) and 15% greater odds for older black patients (p<.001).
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Lavernia	Prospectiv	Objectives	The mean age	From October	For the SF-36
CJ,	e	were to (1)	of the cohort	2000 to	General Health
Alcerro	observatio	determine	was 65 years	March 2002,	Score, blacks
JC, Rossi	nal study	and compare	(standard	331 patients	reported having
MD	(2)	function and	deviation ±	with a	worse perceived
IVID		quality of life	14). Of the	diagnosis of	general health
		between	total number of	end-stage	than whites
		blacks and	patients, 220	osteoarthritis	before surgery.
		whites at	(66.46%) were	who were	Regardless of
		clinical	females. Two	scheduled for	time, blacks
			hundred		scored worse than
		presentation and at an		either primary	whites for all
			eighty-two	or revision hip or knee	
		average	patients		measures except
		follow-up of	(85.2%) self-	arthroplasty	for the SF-36
		5 years after	classified	were assessed	physical function
		surgery; (2)	themselves as	in a	and general
		determine if	white and 49	prospective	health scores.
		differences in	(14.8%) as	controlled	Blacks had a
		fear and	black. Blacks	study.	greater fear score
		anxiety of	were younger	WOMAC,	(i.e., that
		pain exist	(p = 0.047)	Quality of	associated with
		between races	than whites at	Well Being,	the procedure)
		before	presentation	SF-36, and	and total PASS
		surgery; and	$(61 \pm 2 [SEM])$	Pain and	score. For both
		(3) explore	years versus 66	Anxiety	races, there was a
		the	$\pm$ 0.8 years,	Symptoms	low association
		relationship	respectively).	Scale (PASS)	between the fear
		of anxiety	The minimum	were	dimensions and
		and fear of	follow-up was	administered	dependent
		pain before	3 years	pre- and	measures before
		surgery with	(average, 5	postoperativel	and after surgery.
		function and	years; range,	y (average 5-	Black patients
		quality of life	3–8 years;	year follow-	undergoing hip
		before and	Table 1). The	up).	and knee
		after surgery	most common	- /	arthroplasty had
		as a function	complication		lower scores than
		of race	was deep		whites in most
			infection (two)		outcome
			for blacks and		measures
			superficial		regardless of time
			infection (four)		of assessment.
			for whites.		Black patients
					undergoing hip
	1	I			andergoing inp

and knee
arthroplasty had
lower scores than
whites in most
outcome
measures
regardless of time
of assessment.
They found
higher fear levels
before joint
arthroplasty in
blacks compared
with whites. After
surgery, blacks
had much higher
associations of
the fear subscale
cognitive
subscale, and
total PASS score
with the
WOMAC
physical function
pain, and total
scores.

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Lavernia	Prospectiv	Determine	Two patients	In a	Six hundred
CJ,	e	the answers	did not identify	prospective,	seventy-two of
Contreras	observatio	to the	sex and 28%	multicenter	the 765 patients
JS, Parvizi	nal study	following	of patients did	study authors	(88%) completed
J, et al	(2)	questions: Do	not identify	gave 765	questionnaires.
		gender and	ethnicity.	patients an	Non-Hispanics
		ethnicity	Analysis was	anonymous	and men were
		influence	made on	questionnaire	more likely to
		outcome	available data.	on	indicate they
		expectations?	Relative to	expectations,	would be able to
		Is	participants in	arthroplasty	engage in more
		arthroplasty-	Miami,	knowledge,	activities. Non-
		related	Philadelphia	and	Hispanics and
		knowledge	participants	preferences	men had greater
		affected by	were more	before their	arthroplasty
		gender and	likely to be	consultation	knowledge.
		ethnicity? Do	men (43%	for hip and/or	Hispanics and
		gender and	versus 32%)	knee pain,	women were
		ethnicity	and to report	from March	more likely to
		influence	hip problems	2005 to July	report they would
		willingness to	(40% versus	2007.	not pay for a total
		pay for	29%).		joint arthroplasty
		surgery?	Participants at		(TJA) relative to
			the Miami site		non-Hispanics
			were more		and men. Sex and
			likely to be of		ethnic differences
			Hispanic		in patients
			(primarily		presenting for
			Cuban or of		their initial visit
			Cuban		to the
			descent) origin		orthopedists for
			relative to		hip or knee pain
			Philadelphia		influence
			participants		expectations,
			(72% versus <		knowledge, and
			1%) and also		preferences
			were older (70		concerning TJAs.
			years versus 62		
			years).		

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T:	Datus	Т	A 40401 - £720	Enama A	Nau IIian i -
Lavernia	Retrospec	To examine	A total of 739	From August	Non-Hispanic
CJ, Lee D,	tive	the	primary total	1992 to	whites had lower
Sierra RJ,	cohort	association	hip or knee	January 2000,	preoperative pain
et al	study (3)	between	arthroplasties	a consecutive	and WOMAC
		race/ethnicity	performed on	series of	scores and higher
		and insurance	573 patients	patients with a	Quality Well
		type and the	(293 hip and	diagnosis of	Being Index and
		preoperative	280 knee). The	end-stage	SF-36 scores
		status of	mean age of	arthritis who	compared with
		patients	the cohort was	underwent	other racial/ethnic
		undergoing	62.7 years	primary THA	subgroups.
		joint	(standard	or TKA were	Patients with
		arthroplasty	deviation [SD]	retrospectivel	Medicare/private
		surgery	= 14.1). Of the	y reviewed.	insurance had
			total number of	Statistical	better
			patients, 361	analysis was	preoperative
			(63.2%) were	performed on	scores relative to
			females, and	PROMs after	patients with
			328 (57.3%)	surgery. A 2-	Medicaid or no
			were of	way analysis	insurance.
			Hispanic	of variance	Racial/ethnic
			origin. Within	(ANOVA)	status was
			the Hispanic	with	generally more
			subgroup, 215	interaction	strongly
			were	was used to	associated with
			Cuban/Cuban	assess the	preoperative
			American, 82	joint influence	status than was
			were South or	of	insurance type.
			Central	race/ethnicity	Hispanics, blacks,
			American, 13	and insurance.	and patients
			were Puerto		without Medicare
			Rican, 5 were		or private health
			Mexican/Mexi		insurance reach
			can American,		arthroplasty
			and 13 were		surgery with
			Spanish. In the		lower
			present		preoperative
			analysis,		functional and
			participants		health status
			were classified		
			as: Hispanic		
			whites, 300		
			patients		
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RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

Lavernia CJ, Villa JM	Retrospec tive cohort study (3)	(1) Do black patients have more severe or more frequent preoperative pain, well-being, general health, and disease-specific scores when compared with white patients? (2) Are there differences between black patients and white patients after hip or knee arthroplasty on those same measures?	2010 total joint arthroplasties were performed in the year 2010 by one surgeon at a single institution. Of these, 105 patients self-reported as black. Those included in the final analysis included 39 black and 1219 white patients.	Controlling for confounders, including age and ethnicity, patients identifying as black and white were compared on the following preoperative and postoperative patient-oriented outcomes: pain intensity/frequency as measured by a visual analog scale (VAS), Quality of Well-Being (QWB-7), SF-36, and WOMAC scores. Postoperative analysis was only performed on patients with a minimum follow-up of 1 year.	Black patients had more severe preoperative pain intensity (p<.001) and worse wellbeing scores (p=.037). Post operatively, pain intensity and well-being scores were different but without clinical significance.
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MacFarlan	Prospectiv	The nurness	A total of 1070	The authors	Black participants
e LA, Kim	e cohort	The purpose of this	patients within	analyzed a	reported worse
E, Cook			the VITAL	sub cohort of	baseline Western
	study (2)	investigation was to	trial were		Ontario and
NR, et al				patients	
		determine	identified as	enrolled in the	McMaster
		racial	having	Vitamin D	Universities
		variation in	frequent and	and OmegA-3	Osteoarthritis
		total knee	chronic knee	Trial	Index (WOMAC)
		replacement	pain with high	(VITAL) with	pain $(44.8 \pm 20.5)$
		(TKR)	likelihood of	frequent and	vs. $32.4 \pm 16.0$ , P
		procedures in	having knee	chronic knee	< 0.001) and
		a diverse	osteoarthritis	pain with high	function scores
		cohort with	(OA). The	likelihood of	$(44.9 \pm 20.9 \text{ vs.})$
		severe knee	average age of	having knee	$32.2 \pm 17.8, P <$
		pain in an	the knee pain	OA using a	0.001). During
		ongoing	sub cohort was	validated	the median
		clinical trial.	$66.9 \pm 6.7$	survey.	follow-up of 3.6
			years. A total	Inclusion	years, TKRs were
			of 699 (65.3%)	criteria	reported by 180
			of patients	included men	(16.8%)
			were female.	over the age	participants
			786 (73.4%) of	of 50 years	within the knee
			patients were	and women	pain sub cohort.
			white and 285	over the age	Black participants
			(26.6%) of	of 55 years	were less likely to
			patients were	old. Exclusion	undergo TKR (30
			black. Black	criteria	[10.5%] vs. 150
			participants	included	[19.1%], P <
			were	patients with	0.001) compared
			significantly	previous	to white
			younger (63	bilateral	participants. The
			vs. 68 years	TKRs and	cumulative
			old) and more	those who did	incidence of TKR
			likely to be	not identify as	was statistically
			female (78%	either white or	lower in black
			vs. 61%)	black.	participants than
			compared with	Baseline	in white
			white	characteristics	participants (P =
			participants.	were	0.002). After
			Fewer black	compared	adjusting for all
			participants	with statistical	baseline
			-	_	
			reported education	significance assessed with	covariates, black patients were

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vs. 88%) or had income greater than greater than \$50,000 per year (28% vs. binary year (28% vs. 55%). Black variables.  TKR compared white participan (HR 0.51, 95% Confidence Interval [CI] 0.32–0.81).	vs. 18%) or hypertension (83% vs. Cox proportional hazards regression models were used to	calculate hazard ratios (HR) for TKR over time associated with black versus white race.	vs. 88%) or had income greater than \$50,000 per year (28% vs. 55%). Black participants were also more likely to be obese (BMI >30 kg/m2, 68% vs. 50%) and to have diabetes (29% vs. 18%) or hypertension (83% vs.	variables and Chi squared or Fischer exact test for binary variables. Log-rank test was used to assess for differences in cumulative incidence of TKR between black and white participants. Cox proportional hazards regression models were used to calculate hazard ratios (HR) for TKR over time associated with black versus white	Confidence Interval [CI]
narticinants   Log-rank test		hypertension (83% vs. Cox proportional hazards regression models were	were also more likely to be obese (BMI >30 kg/m2, 68% vs. 50%) and to have	was used to assess for differences in cumulative incidence of TKR between	

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3.6.1 =	_				
Mehta B,	Retrospec	The purpose	An estimated	The database	The proportion of
Ho K,	tive	of this study	276,194	of the	BTKA among all
Bido J, et	cohort	was to	BTKA and	Healthcare	TKAs declined.
al	study (3)	examine	5,528,429	Cost and	African
		bilateral total	UTKA were	Utilization	Americans were
		knee	performed in	Project	less likely to
		arthroplasty	the US in	(National	undergo BTKA
		(BTKA)	patients over	Inpatient	compared to
		versus	50 years old.	Sample, 2007-	white patients
		unilateral		2016) was	throughout the
		total knee		used to	study period
		arthroplasty		identify	(trend p=.01). In-
		(UTKA)		patients $\geq 50$	hospital
		utilization		years old who	complication
		and in-		underwent	rates for UTKA
		hospital		elective	were higher in
		complications		primary TKA.	African American
		comparing		Differences in	patients compared
		African		temporal	to whites
		American		trends in	throughout the
		patients to		utilization and	study period
		White		major in-	(trend P < .0001).
		patients.		hospital	However, the in-
				complication	hospital
				rates of	complication
				BTKA vs	rates varied
				UTKA	between Whites
				comparing	and AAs
				African	throughout the
				American	study period for
				patients to	BTKA (trend P
				white patients	=.09).
				were	,
				computed.	
				Major in	
				hospital	
				complications	
				studied	
				included	
				postoperative	
				myocardial	
				infarction,	
				prosthetic	
				prosincuc	

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				device complication, surgical wound infection, and venous thromboembo lism.	
Menendez ME, Ring D, Barnes CL	Retrospec tive cohort study (3)	This study aimed to investigate whether inpatient dislocation after THA could be associated with patient and hospital characteristic s.	All adult patients undergoing elective primary THA were considered, and the population was further narrowed by identifying those who sustained a hip dislocation during index	Discharge records from the Nationwide Inpatient Sample (2002-2011) were used for the data source. Temporal trends were assessed, and multivariable logistic regression	The in-hospital dislocation rate increased 2002 to 2011, despite a downward trend in length of stay (p<.001). Patient characteristics associated with the occurrence of dislocation were black (p<.001) or Hispanic (p=.001) race/ethnicity, lower household income (p<.001),

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	hospitalization.	modeling was	and Medicaid
	The final	used to	insurance
	number was	identify	(p=.034).
	2,173.	factors	Comorbidities
		associated	associated with
		with	dislocation
		dislocation.	included
			hemiparesis/hemi
			plegia (p< .001),
			drug use disorder
			(p=.02), chronic
			renal failure (p<
			.001), psychosis
			(p=.027), and
			obesity (p< .001).
			Age, sex, and
			alcohol use
			disorder did not
			affect the
			dislocation risk.
			Dislocations were
			less likely to
			occur at teaching
			hospitals (p<
			.001) and in the
			South (p=.002).

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p u ii p p e ii h	outcomes persist in a universally insured population of patients enrolled in an integrated health-care system.	8.2% were black, 8.5% were Hispanic and 4.2% were Asian. The average age was 65.8 years old and 42.3% of patients were male.	patients age greater than 18 who underwent elective THA from 2001 to 2016. Cases were excluded if they involved revision procedures, a prior surgical procedure of the affected hip, prior infection involving the affected joint, same-day bilateral procedures, or staged bilateral procedures within 90 days of each other. Cases involving the DePuy ASR system were also excluded due to	Confidence Interval [CI] 0.66-0.94, P = 0.007), Hispanic (HR = 0.73; 95% CI 0.61-0.87, P < 0.001), and Asian (HR = 0.49, 95% CI 0.37-0.66, P < 0.001). With regard to postoperative events, there was no observed difference in mortality when comparing the 3 minority groups with the white group. When compared to the white group, black and Hispanic patients had a lower likelihood of 90- day deep infection (Odds Ratio [OR] = 0.62, 95% CI 0.40-0.96, P = 0.031 and OR = 0.58, 95% CI
			system were also excluded	0.40-0.96, P = 0.031 and OR =

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		risks of	0.027), Asian
		revision	patients had a
		associated	lower likelihood
		within this	of 90-day venous
		implant.	thromboembolis
		Racial and	m (OR = 0.29,
		ethnic	95% CI 0.14-
		differences in	0.58, P < 0.001),
		lifetime	and Hispanic and
		revision (all-	Asian patients
		cause, aseptic,	had a lower
		and septic)	likelihood of 90-
		and 90-day	day readmission
		postoperative	(OR = 0.79, 95%)
		outcomes	CI 0.68-0.92, P =
		including	0.002 and $OR =$
		infection,	0.73, 95% CI
		venous	0.59-0.91, P =
		thromboembo	0.005). 90-day
		lism,	ED visits were
		emergency	higher among
		department	black patients
		(ED) visits,	(OR = 1.15, 95%)
		readmission	CI 1.05-1.25, P =
		and mortality	0.002) and
		were analyzed	Hispanic patients
		using multiple	(OR = 1.18, 95%)
		regression	CI 1.08-1.28, P <
		models.	0.001).

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Oronce	Retrospec	The purpose	A total of	The authors	The overall rate
CI, Shao	tive	of this	58,777 patients	analyzed data	of unplanned 30-
H, Shi L	cohort	investigation	who were	from The	day all-cause
ii, siii L	study (3)	was to	discharged	Healthcare	readmissions after
	study (3)	identify	from a	Cost and	elective primary
		disparities in	California	Utilization	THA was 4.6%.
		elective total	Hospital after	Project's State	African American
		hip	undergoing	Inpatient	(Odds Ratio [OR]
		arthroplasty	elective THA	Database	= 1.38, 95%
		(THA)	were included.	from	Confidence
		readmissions	85.24% were	California to	Interval [CI]
		based on	white, 4.83%	identify index	1.16–1.64) and
			were black,	hospitalizatio	· /
		race,	7.47% were	n for elective	Hispanic (OR =
		socioeconomi c status and	Hispanic and		1.16, 95% CI
		type of	2.55% were	primary THA and	1.00–1.34) patients had a
		<b>7</b> 1	Asian. The		*
		insurance.		rehospitalizati on within 30	higher risk of readmission than
			median age for black and		
				days of	white patients after THA when
			Hispanic	discharge.	
			patients was 62	Multivariate	accounting for
			and 63	logistic	comorbidities and
			compared to	regression	hospital factors.
			67 years old	was used to	Lower
			for white and	examine	socioeconomic
			Asian patients.	differences in	status was
			41% of	all-cause	associated with
			African	readmission	higher odds of
			Americans,	within 30	readmission
			26% of	days by race,	within 30 days
			Hispanics and	socioeconomi	(OR = 1.24, 95%)
			14% of whites	c status and	CI 1.10–1.39).
			were within	insurance.	Compared with
			the lowest		private insurance,
			quartile for		Medicare (OR =
			socioeconomic		1.26 95% CI
			status (P <		1.13–1.43),
			0.001). 10% of		Medicaid (OR =
			blacks and 9%		1.86 95% CI
			of Hispanics		1.49–2.32), and
			were enrolled		uninsured status
			in Medicaid (P		(OR = 1.31, 95%)
			< 0.001) and		CI 1.01–1.69)

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			5% were uninsured (P < 0.001)		were also associated with increased readmission risk.
Owens JM, Bedard NA, Dowdle SB, et al	Retrospec tive cohort study (3)	This study evaluated the impact of race on VTE following TKA using a large multicenter database.	In total, 96,230 patients were included in the study. Patients were stratified based on race: Asian, Black/African American, White, and Other.	Primary outcomes included overall complications and VTE. Data was obtained from the American College of Surgeons National Surgical Quality Improvement Program to identify patients who underwent primary TKA in 2010-2014. Demographics were	Black patients had a significantly higher rate of any complication (5.5%, p=.007), deep venous thrombosis (1.3%, p<.001), and pulmonary embolism (1.1%, p<.001) than other races. Overall mortality rate did not differ between races (p=.26). Black patients were significantly more likely to have a VTE than White patients (OR 1.7, 95% CI 1.4-2.0).

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				compared to determine the impact on 30-day postoperative complications .	Overall complications were significantly higher for Black patients than White patients (OR 1.1, 95% CI 1.02-1.3). There were no differences in the rates of VTE or overall complications between Asians/Other races and Whites.
Perez BA, Slover J, Edusei E, et al	Prospective cohort study (2)	The aim of this study is to assess the role of demographics and expectations on differences in perioperative patient reported outcomes (PRO) following TKA.	Total number of primary unilateral TKA patients included in this two-institution study is 133. There were 69 (51.9%) black patients, 55 (41.4%) white patients, 3 (2.3%) Hispanics, 2 (1.5%) Asian patients, and 4 (3%) patients of unknown race. 104 were women.	Validated PRO questionnaires were collected at three time points (preoperativel y, 4-8 weeks post op, 9-14 months post op) in the TKA process. Questionnaire s included the Knee Injury and Osteoarthritis Outcome Scores (KOOS) for symptoms, pain, and activities of daily living. Statistical analysis was conducted to	Females were associated with worse preoperative KOOS scores for symptoms, pain, and activities of daily living (p<.05). African Americans were associated with worse KOOS for pain, activities of daily living, and quality of life (p<.05). There was no statistically significant difference seen in post-operative scores.

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				determine the impact of gender, ethnic background and expectation surveys responses to assess PRO at these time points.	
Riddle DL, Slover J, Keefe FJ	Randomiz ed controlled trial (2)	To determine whether race associated with total knee arthroplasty (TKA) outcome after accounting for potential confounding factors	For the sample of 384 participants, n=135 self-reported as African American or Black and 240 self-reported as White. The remainder (N = 9) were distributed among the other race/ethnicity categories. African Americans were older, had a higher BMI, lower educational level and	Authors conducted a secondary analysis of a randomized clinical trial of 384 participants with moderate to high pain catastrophizin g who underwent knee arthroplasty. Preoperative measures included race/ethnicity status as well as a variety of potential confounders including	WOMAC Pain scores differences for African Americans versus non-African Americans averaged approximately 2 points in unadjusted analyses and 1 to 1.5 points in adjusted analyses. In adjusted analyses, follow-up WOMAC Function scores differed by 6 points for African Americans compared to non-African Americans (p = 0.002).

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income as	socioeconomi	
compared to	c status,	
the non-	comorbidity	
African	_	
	and bodily	
Americans.	pain.	
	Outcome	
	measures	
	were Western	
	Ontario and	
	McMaster	
	Universities	
	Osteoarthritis	
	Index	
	(WOMAC)	
	Pain and	
	Function	
	Scales as well	
	as	
	performance	
	measures.	
	Linear mixed	
	effects models	
	compared	
	outcomes	
	over a one-	
	year follow-	
	up for African	
	Americans	
	versus the	
	non-African	
	Americans.	

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Doole - M	D otres are a s	The my	A total of	The outle our	Revision
Roche M,	Retrospec	The purpose		The authors	
Law TY,	tive	of this study	125,901	analyzed data	incidence and
Sultan	cohort	was to	patients with	from the	burden was the
AA, et al	study (3)	evaluate the	knee	PearlDriver	highest in the
		incidence,	osteoarthritis	database to	African American
		annual	(OA) who	identify	cohort (12.4%,
		burden,	underwent	patients with	11.1%) and was
		causes and	primary total	OA who	lowest within the
		age group	knee	underwent	Asian cohort
		distribution	arthroplasty	primary then	(3.4%, 3.3%) (P <
		of revision	(TKA) from	subsequent	0.001). Revision
		total knee	2007 to 2014	revision TKA	incidence and
		arthroplasty	were	from 2007 to	burden were 8.1
		(TKA)	identified. Of	2014. Patients	and 7.5% in the
		among	these patients,	were stratified	Hispanic cohort
		different	11,589 (9.2%)	by race and	and 9.6 and 8.7%
		racial groups.	underwent	age. In each	in the Native
			revision TKA.	racial cohort,	American cohort.
			The Caucasian	the overall	Across all
			cohort was the	incidence of	cohorts,
			largest with	revision TKA,	mechanical
			98,257 patients	annual	complications of
			who	revision	the joint
			underwent	burdens, and	prosthesis were
			primary TKA	causes of	the most common
			(78%) (P <	revisions were	cause of revision
			0.001). The	calculated and	followed by
			Native	compared.	periprosthetic
			American	Additionally,	joint infection,
			TKA cohort	a sub-analysis	while contracture
			contributed the	for the	was the least
			smallest	incidence of	common (P <
			number of	revision TKA	0.001). Analysis
			primary	stratified by	by age of each
			procedures	age, in each	cohort found that
			with 261	cohort, was	the highest
			patients	performed.	incidence of
			(0.21%) (P <	Statistical	revision TKA
			0.001).	analysis was	was in patients
			,	performed	less than 40 years
				with one-way	old in the
				analysis of	Caucasians cohort
				variance	(27.1%). Among
				variance	(21.170). Among

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		(ANOVA)	the Asian (4.1%)
		and chi-	and Native
		squared	American (9.7%)
		analysis to	cohorts, revision
		demonstrate	incidence was
		revision	highest in patients
		incidence,	older than 65
		burden,	years. Matched
		causes, and	African
		age	Americans and
		distribution.	Asians had
			slightly lower
			mean revision
			incidence (12.40
			vs. 12.65% and
			15.07 vs. 16.82%,
			p = 0.005 and
			0.025), while
			matched Native
			American had
			significantly
			higher mean
			revision incidence
			(35.76 vs.
			27.46%, p =
			0.064) when
			compared to the
			Caucasian cohort.

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Rubenstei	Prospectiv	The aim of	1,088 patients	Patients	Black race was
n WJ,	e cohort	the study was	completed	undergoing	significantly
Harris	study (2)	to determine	baseline	TJA at three	negatively
AHS,		whether	surveys and	VHA	correlated with
Hwang		social	858 patients	hospitals	knee PROM
KM, et al		determinants	completed	prospectively	improvement
		of health	follow-up	completed	(p<.05) and
		(SDOH)	surveys at 1	PROMs	Hispanic ethnicity
		affect patient-	year. This final	before and 1	was significantly
		reported	cohort	year after	negatively
		outcome	included 587	surgery.	correlated with
		measures	TKA patients	PROMs	hip PROM
		(PROMs)	and 271 THA	included the	improvement
		following	patients.	Hip disability	(p<.05) compared
		TJA in	79.7% of TKA	and	to whites. Higher
		Veterans	patients and	Osteoarthritis	baseline PROM
		Health	83% of THA	Outcome	scores and lower
		Administratio	patients were	Score, the	age were
		n (VHA)	white. The	Knee injury	significantly
		patients.	mean age was	and	associated with
			66.1 years for	Osteoarthritis	lower PROM
			TKA patients	Outcome	improvement.
			and 65.6 years	Score, and	Significant
			for THA	their Joint	associations were
			patients.	Replacement	also found based
			93.2% of TKA	sub scores.	on education,
			patients and	SDOH	gender,
			94.7% of THA	included race,	comorbidities,
			patients were	ethnicity,	and neighborhood
			men.	marital status,	poverty.
				education, and	
				employment	
				status. The	
				level of	
				poverty in	
				each patient's	
				neighborhood	
				was	
				determined.	
				Medical	
				comorbidities	
				were	
				recorded.	
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			Analyses were performed to determine whether SDOH were significantly associated with PROM improvement after surgery.	
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D 1 '11	D 4	TT1	A 4 4 1 C	TP1 /1	NI 1:00
Rudasill	Retrospec	The purpose	A total of	The authors	No difference
SE,	tive	of this study	11,408 patients	analyzed the	was observed in
Dattilo JR,	cohort	was to	were identified	American	the likelihood of
Liu J, et al	study (3)	explore racial	with a	College of	receiving a THA
		biases in the	diagnosis of	Surgeons	versus
		surgical	femoral neck	National	hemiarthroplasty
		decision	fracture and	Surgical	among different
		making	were treated	Quality	racial groups.
		between total	with either a	Improvement	Age was
		hip	THA or	Program	determined to be
		arthroplasty	hemiarthroplas	(NSQIP) to	a negative
		(THA) and	ty. 88.28% of	identify	predictor of
		hemiarthropla	patients were	patients using	receiving a THA
		sty for	white, 4.74%	the	(Odds Ratio [OR]
		displaced	were Hispanic,	postoperative	= 0.730, 95%  CI
		femoral neck	4.05% were	diagnosis of	0.625-0.854, P <
		fractures as	African	transcervical	0.001). Patients
		well as racial	American and	femoral neck	who reported
		disparities in	2.93% were	fracture from	steroid use for
		postoperative	Asian.	2006 to 2014.	chronic
		complications		Multivariable	conditions were
		, readmission		regression	more likely to
		rates and 30-		analysis was	undergo THA
		day mortality.		conducted	compared to
				including race	hemiarthroplasty
				and	(OR = 1.937,
				independent	95% CI 1.056-
				risk factors	3.552, P = 0.033).
				including	Race was
				demographics	significantly
				and medial	associated with
				comorbidities	having a major
				to elucidate	postoperative
				the treatment	complication (P =
				decision for	0.013) and 30-day
				THA versus	mortality (P =
				hemiarthropla	0.014) for
				sty.	patients
				Postoperative	identifying as
				outcomes	Asian. Neither
				included	infection (P =
				complications	0.209) nor
				of infection,	cardiopulmonary
				or infection,	cardiopullionary

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		dislocation, cardiopulmon ary compromise, readmission rate and 30-day mortality.	compromise (P = 0.863) or readmission rates (P = 0.588) were associated with race.

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Singh JA,	Retrospec	The purpose	Among 107	Primary	In patients
Kallan	tive	of this study	768 patients,	outcome was	younger than 65
MJ, Chen	cohort	is to assess			•
*		the	7287 (6.8%) were African	discharge	years, African
Y, et al	study (3)			disposition and 90-day	American patients
		association of	American, 68	•	were more likely
		race/ethnicity	372 (63.4%)	hospital	than white
		with	were women,	readmission.	patients to be
		discharge	46 420	Data was	discharged to
		disposition	(43.1%) were	obtained from	inpatient
		and hospital	younger than	the	rehabilitation
		readmission	65 years, and	Pennsylvania	facility (IRF)
		after elective	60 636	Health Care	(adjusted relative
		primary	(56.3%) were	Cost	risk ratio [aRRR],
		TKA, and to	insured by	Containment	2.49 [95% CI,
		assess the	Medicare.	Council	1.42-4.36];
		association of		Database	p=.001) or a
		nonhome		which	skilled nursing
		discharge		includes all	facility (SNF)
		disposition		discharges of	(aRRR, 3.91
		with hospital		patients who	[95% CI, 2.17-
		readmission		underwent	7.06]; p<.001)
		risk		elective	and had higher
				primary TKA	odds of 90-day
				in 170	hospital
				nongovernme	readmission
				ntal acute care	(adjusted odds
				hospitals in	ratio [aOR], 1.30
				Pennsylvania	[95% CI, 1.02-
				from April 1,	1.67]; p=.04).
				2012, to	Compared with
				September 30,	white patients 65
				2015.	years or older,
					African American
					patients 65 years
					or older were
					more likely to be
					discharged to
					SNF (aRRR, 3.30
					[95% CI, 1.81-
					6.02]; p<.001). In
					both age groups,
					discharge to an
					IRF F (age <65

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Singh JA, Lu X,	Retrospec	The purpose of this study	A total of 2,684,575	The authors analyzed data	years: aOR, 3.62 [95% CI, 2.33- 5.64]; p< .001; age 65 years: aOR, 2.85 [95% CI, 2.25-3.61]; P < .001) or SNF (age <65 years: aOR, 1.91 [95% CI, 1.37-2.65]; p< .001; age 65 years: aOR, 1.55 [95% CI, 1.27- 1.89]; p< .001) was associated with higher odds of 90-day readmission. The use of primary TKA was
Rosenthal GE, et al	cohort study (3)	was to determine	primary TKAs, 267,644	from the United States	36% lower for African
GE, et al	study (3)	whether	revision TKAs,	(US)	African Americans
		racial	1,328,902	Medicare	compared with
		disparities in	primary THAs	Provided	Caucasians in
		usage and	and 317,408	Analysis and	1991 (P < 0.0001)
		outcomes of	revision THAs	Review	and 40% lower in
		total knee and	performed	(MedPAR)	2008 (P < 0.0001)
		total hip	between 1991	Part A data	with similar
		arthroplasty	and 2008 were	files to	findings for the
		(TKA and	included.	identify fee-	other cohorts of
		THA) have	Compared	for-service	revision TKA,
		declined over	with Caucasian	beneficiaries	primary THA and
		time.	patients,	who	revision THA.
			African	underwent	The disparity
			American patients	primary or revision TKA	between African Americans and
			included in the	or THA	Caucasians in 30-
			study were	between 1991	day hospital
			more likely to	to 2008. For	readmission rates
			be younger,	the primary	and proportion of
			women and	TKA and	patients
			have	THA cohorts,	discharged to

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significantly more medical comorbidities.	patients who had infection, bone or metastatic cancer or fracture at the time of surgery were excluded. Trends in hospital length of stay, 30-day mortality, hospital readmission within 30 days of discharge, occurrence of the discharge to home after hospitalizatio n were evaluated using Cochran-	home after surgery increased significantly from 1991 to 2008 across all cohorts (P < 0.05).
	_	
	_	
	Mantel-	
	Haenszel statistics.	
	Trends in 30-	
	day mortality	
	were	
	evaluated	
	using logistic	
	regression	
	models.	

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Skinner J, Weinstein JN, Sporer SM, et al	Retrospec tive cohort study (3)	The purpose of this study was to determine if and where racial and ethnic disparities occur among Medicare enrollees in the use of knee arthroplasty.	A total of 430,726 TKAs were performed in 403,251 patients were reported. Three racial or ethnic groups were defined: black, Hispanic, and non-Hispanic white (or "white").	Data was obtained through the Medicare fee-for-service claims database for 1998 through 2000 to determine the incidence of knee arthroplasty according to Hospital Referral Region, sex, and race or ethnic group.	The rate of knee arthroplasty was higher for white women (5.97 procedures per 1000) than for Hispanic women (5.37 per 1000) and black women (4.84 per 1000) (p<.001). The rate for white men (4.82 procedures per 1000) was higher than that for Hispanic men (3.46 per 1000) and more than double that for black men (1.84 per 1000) (p<.001). The rates were significantly lower for black men than for non-Hispanic white men in nearly every region of the country (p<.05). Among black women, living in a region with a low level of residential segregation was associated with a smaller difference in arthroplasty rates (0.46 per 1000) than living in a region with a high level of
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					segregation (1.05 per 1000, p<0.001).
Skinner J, Zhou W, Weinstein J	Retrospec tive cohort study (3)	The purpose of this study is to investigate the associations between income, total knee arthroplasty (TKA), and underlying rates of knee osteoarthritis.	A total of 27.5 million patients were analyzed from the US Medicare claims database, and a total of 1926 were analyzed from the NHANES III.	The 2000 US Medicare claims database was used to measure incidence of total knee arthroplasty by race, ethnicity, postal code income, and region. The National Health and Nutrition Examination Survey (NHANES III) for persons sixty years or older with radiographic	Age-adjusted rates of TKA in the high-income quintile were no higher than those in the low-income group. Access to care was better for high-income groups (18.5% higher than the lowest quintile). Racial disparities in arthroplasty were significant, with black patients receiving less TKAs than their white counterparts (p<.001). There was no evidence of an income gradient for clinical and

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				and clinical evidence of osteoarthritis was also used.	radiographic measurements of arthritis, other than a significant negative association between income and pain on passive motion (p<.05).
Slover JD, Walsh MG, Zuckerma n JD	Prospective observational study (2)	Is there a relationship between sex, race, and preoperative function in patients undergoing hip and knee arthroplasty?	The study was conducted on 3542 consecutive primary unilateral total hip and knee arthroplasty patients, 1596 which were hips. Average age of hip patient's was 65.2 years old, and average age of knee patients was 59.8 years old.	Data was collected from January 1997 to July 2006. Self-reported basic demographic data included age, sex, and race (categorized as black, white, Latino, and other). Harris Hip and Knee Society Scores were used to quantify preoperative function.	Compared to white patients, Harris Hip Scores were 4.9 (p<.0001) and 8.77 (p<.001) average points lower in African American and Hispanic patient populations, respectively. Compared to white patients, Knee Society Scores were 6.03 (p<.05) and 12.8 (p<.001) average points lower in African American and Hispanic patient populations, respectively. Compared with Hispanic men,

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					African American men had statistically significantly better preoperative Knee Society Scores (18.92 points better (p<.009).
SooHoo NF, Farng E, Zingmond DS	Retrospec tive cohort study (3)	The purpose of this investigation was to identify the characteristic s of patients who undergo total hip replacement (THR) at high-volume hospitals and their differences from those who receive care at low-volume hospitals.	A total of 138,399 patients who underwent THR surgery in one of 399 California hospitals between 1995 and 2005. There were 53,215 procedures (38%) performed at hospitals with low (6221) or intermediate (46,994) surgical volumes. 85,184 (62%) procedures occurred at higher-volume hospitals. The average age of all patients was 66.16 ± 12.92. 79,514 (57%) of patients	The authors analyzed the California Office of Statewide Health Planning and Development (OSHPD) database to identify patients who underwent THR surgery between 1995 and 2005. Inclusion criteria included patients who underwent primary THR in a California hospital. Exclusion criteria included patients with infection, pathologic fracture or	There were 160 (40%) low-volume and 160 (40%) intermediate-volume hospitals included within the study. The remaining 20% of the hospitals made up the group of 79 high-volume centers. The average surgical volume was 3.5 cases per year per hospital at low-volume hospitals. The average was 26.7 cases per year per hospital at intermediate-volume centers, and 98.0 cases per year per high-volume hospitals. High volume hospitals had a higher percentage of Caucasian

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	were female. 117,107 (85%) were white, 6,051 (4%) were black, 9,368 (7%) were Hispanic and 3006 (2%) were Asian.	undergoing revision arthroplasty. Logistic regression models were created to examine the association among patient characteristics including race/ethnicity, income, age, and the Charlson comorbidity index of patients and the likelihood of undergoing surgery at low-, intermediate-, and high-volume hospitals.	patients (87%) than intermediate (83%) or low- volume hospitals (68%). Conversely, the proportion of patients in the lowest quartile of income was greater at low volume (9%) and intermediate- volume (5%) hospitals than at high-volume centers (3%). Hispanic patients had the highest Relative Risk Ratio (RRR) for being treated at either a low- volume (RRR = 3.52, 95% Confidence Interval [CI] 2.61-4.74, P < 0.001) or intermediate volume hospital (RRR = 1.60, 95% CI 1.24- 2.06, P < 0.001) when compared to Caucasian patients. Black (RRR = 1.78, 95% CI, 1.08- 2.92; p = 0.023) and Asian (RRR = 1.77, 95% CI, 1.00-3.22, P =
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		0.048) patients
		also had a high
		risk of being
		treated in a low
		volume hospital
		compared to
		Caucasian
		patients. Patients
		within the lowest
		income group
		were at increased
		risk of being
		treated at either a
		low-volume
		(RRR = 3.19,
		95% CI 1.89-
		5.37, P < 0.001)
		or intermediate
		volume (RRR =
		1.80, 95% CI
		1.09-2.98, P =
		0.02) hospital
		compared to
		patients within
		the highest
		income group.

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SooHoo	Retrospec	The purpose	222,684	Patients who	Patients who
NF,	tive	of this study	patients' data	underwent	were not
	cohort	_	-	TKA in	
Zingmond		is to identify the	was analyzed from the study	California	belonging to the Caucasian
DS, Ko CY	study (3)				
Ci		characteristic	period.	from 1991-	race/ethnicity had
		s of patients	Primary TKA	2001 had their	a higher relative risk ratio for
		who undergo	was performed	discharge data	
		total knee	at 413	analyzed.	being treated at a
		arthroplasty	hospitals.	Hospitals	low-volume
		(TKA) at	There were	were	center, including
		high-volume	165 low-	classified into	Black (p=.02),
		hospitals and	volume and	tiers of	Hispanic
		their	165	surgical	(p<.001), and
		differences	intermediate-	volume (low	Asian/Pacific
		from those	volume	[bottom 40th	Islander (p<.001)
		who receive	hospitals,	percentile],	ethnic groups.
		care at low-	comprising of	intermediate	Medicaid
		volume	40% of the	[middle 40th	insurance was an
		hospitals.	total.	percentile],	independent
				high [top 20th	predictor of
				percentile]).	treatment at low-
				Separate	volume hospitals.
				logistics	
				regression	
				models were	
				created to	
				examine the	
				relationships	
				between	
				race/ethnicity,	
				insurance	
				status, and the	
				utilization of	
				high-volume	
				and low-	
				volume	
				hospitals.	
				Logistic	
				regression	
				models	
				corrected for	
				covariates	
				including age,	

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				gender, and comorbidity.	
Steel N, Clark A, Lang IA, et al	Prospective observational study (2)	Can racial disparities in receipt of hip and knee joint replacements be explained by disparities in need?	Patient population included those in the Health and Retirement Study (HRS) which is a survey every 2 years (1998, 2000, 2002) and includes 14,807 adults aged 60 or older over a 6-year period.	Data from the HRS database were used to assess need, which was based on having: difficulty walking, joint pain, stiffness, swelling, receipt of treatment for arthritis. The outcome was measured as receipt of a joint replacement	Need in 2002 was greater in participants who were older than 74 years, women, not college educated, in the poorest 3rd, or obese.  168 patients in need received a joint replacement, with lower receipt in African Americans (vs white [p=.005]), less educated (vs college educated [p=.029]).

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				over the subsequent 2 years from survey.	
Stone AH, MacDonal d JH, Joshi MS, et al	Retrospec tive cohort study (3)	This study examines the influence of race on length of stay (LOS), discharge disposition, and complications requiring reoperation following total joint arthroplasty (TJA).	A consecutive series of 7208 primary TJA procedures performed at a single institution between 2013 and 2017 were analyzed. Of these, 6182 (84.3%) were white and 1026 (14.0%) were African Americans (AA). AA patients were younger (63.62 vs 66.84 years, P < .001), and more likely female (68.8% vs 57.0%, P < .001).	A single institution's primary TJA patient series was reviewed for case performed between July 2013 and June 2017. Chisquared and ttests were used to quantify differences between the groups and multiple logistic regression was used to identify race as an independent risk factor.	African American patients had a longer length of stay (2.19 vs 2.00 days, p<.001), more likely to experience septic complications (1.3% vs 0.5%, p=.002) and manipulation under anesthesia (3.9% vs 1.8%, p<.001), and less likely to discharge home (67.1% vs 81.1%, p<.001). Compared to white patients, AA patients were more likely to discharge to a facility (adjusted OR 2.63, 95% CI 2.19-3.16, p<.001) and undergo a manipulation under anesthesia (adjusted OR 1.90, 95% CI

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					1.26-2.85, p=.002).
Suarez- Almazor ME, Souchek J, Kelly A, et al	Cross-sectional study (4)	The purpose of this investigation was to evaluate the preferences and beliefs of patients with knee osteoarthritis (OA) from diverse ethnic backgrounds in relation to total knee replacement (TKR) surgery.	A total of 198 patients with a primary diagnosis of knee OA who met inclusion and exclusion criteria were included within the study. A total of 66 patients were included in the white, African American (AA) and Hispanic groups. Ethnic minorities were younger, were less educated, and had lower	The authors performed a cross-sectional survey of patients with knee OA attending a single multiclinic institution in Houston, TX. An administrative database was used to identify patients with a physician diagnosis of OA and asked to participate in an inperson	TKR surgery was recommended to 27% of the African Americans, compared with 15% of whites and 11% of Hispanics (P=.04). This was not statistically significant after adjusting for demographics and WOMAC score. More whites than minorities (AA and Hispanics combined) had considered TKR (42% vs 28%, P = 0.04). 97% of white patients stated they would

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	· , ·	'1 TIZD 'C
income than	interview.	consider TKR if
whites (P <	Inclusion	their arthritis
0.05 for each).	criteria	became worse,
	included a	and their
	physician	physician
	diagnosis of	recommended the
	knee OA,	procedure
	patient	compared to 85%
	ethnicity of	for AA and 76%
	white, African	of Hispanic
	American	patients (P =
	(AA), or	0.002). 100% of
	Hispanic, age	white patients had
	greater than	heard of TKR
	55 years, no	surgery compared
	history of	to 91% of AA
	previous TKR	and 80% of
	surgery,	Hispanic patients
	English or	(P < 0.001). 88%
	Spanish	of white patients
	proficiency	had a relative or
	and adequate	close friend who
	cognitive	had undergone a
	ability. The	TKR compared to
	survey sought	70% of AA and
	to assess	58% of Hispanic
	patients'	patients (P =
	familiarity	0.001). When
	with joint	patients were
	replacement	asked whether
	surgery for	they would
	OA, outcome	consider TKR if
	expectations	recommended by
	and trust in	their physicians,
	physicians.	the only variables
	The Western	that remained
	Ontario and	statistically
	McMaster	significant were
	Universities	ethnicity and
	(WOMAC)	perception of
	Index was	efficacy. The
	used to assess	odds of a white
	asea to assess	person
		person

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		severity of OA.	considering TKR if recommended by their physician were 3 times that of an African American and 6 times that of a Hispanic.

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Vina ER, Cloonan YK, Ibrahim SA, et al	Cross-sectional study (4)	To determine whether there are racial differences in social support among patients with knee osteoarthritis (OA) and whether the impact of social support on patient preferences for total knee replacement (TKR) varies by race and sex.	A total of 514 white and 285 AA patients participated in the study. AA patients, compared to white patients, were younger (p<0.001) and more likely to be female (p<0.001). They were also less likely to have a graduate degree, less likely to be employed and more likely to have lower income (P < 0.001)	A total of 514 white and 285 African American patients with knee OA were surveyed. Logistic regression models were performed to determine if the relationship between willingness to undergo TKR and the interaction of patient race and sex was mediated by social support	Compared to whites with knee OA, African American patients were less likely to be married (P < 0.001), reported fewer close friends/relatives (P < 0.001), and had lower Medical Outcomes Study Social Support Scale (MOS-SSS) scores (P < 0.001). African American patients were also less willing to undergo TKR (62% versus 80%; P < 0.001) than whites. The odds of willingness to undergo TKR were less in white females compared to white males when adjusted for recruitment site,
			more likely to have lower income (P <	and sex was mediated by	undergo TKR (62% versus 80%; P < 0.001) than whites. The odds of willingness to undergo TKR were less in white females compared to white males when adjusted for
					interval [95% CI] 0.34-0.96). This

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difference was no
longer significant when further
adjusted for
marital status,
number of close
friends/relatives,
and MOS-SSS
score, but the
effect size
remained
unchanged (OR
0.60, 95% CI
0.35-1.02). The
odds of
willingness to
undergo TKR
remained much
less in African
American females
(OR 0.35, 95% CI
0.19-0.64) and
African American
males (OR 0.28,
95% CI 0.14-
0.54) compared to
white males when
controlled for
sociodemographi
c, clinical, and
social support
measures. Social
support is an
important determinant of
determinant of
preference for
TKR surgery only
among whites.

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Vina ER,	Retrospec	To examine	Among the	Using the	Among patients
	tive	racial	THR surgery	Pennsylvania	<65 years,
MJ,	cohort	differences	patients	Health Care	compared to
· ·	study (3)	where THR	analyzed, 63	Cost	whites, AAs had
et al	3 (- )	recipients	625 self-	Containment	a higher risk of
		receive	identified as	Council	discharge to an
		postsurgical	white and 4391	database,	IRF (adjusted
		rehabilitation	self-identified	authors	relative risk ratio
		care and	as AA. Among	selected	[aRRR]: 2.56,
		determine	those <65	African	95% confidence
		whether	years, AAs	American	interval [CI]:
		discharge	were less	(AA) or white	1.77-3.71) and a
		destination is	likely to have	adults who	SNF (aRRR 3.37,
		associated	private	underwent	95% CI: 2.07-
		with hospital	insurance and	THR surgery	5.49). Among
		readmission.	more likely to	(n = 68,016).	those $\geq 65$ years,
		Touchingston.	rely on	They used	AA patients also
			Medicare or	multinomial	had a higher risk
			Medicaid than	logistic	of discharge to an
			whites (P <	regression	IRF (aRRR: 1.96,
			.001). After	models to	95% CI: 1.39-
			age 65, a vast	assess the	2.76) and a SNF
			majority	relationship	(aRRR: 3.66,
			(nearly 90%)	between race	95% CI: 2.29-
			of both AAs	and	5.84). Discharge
			and whites	postsurgical	to either IRF or
			relied on	discharge	SNF, instead of
			Medicare. AAs	destination.	home with self-
			were more	They	care, was
			likely than	calculated 90-	significantly
			whites to be	day hospital	associated with
			admitted into	readmission	higher odds of
			hospitals with	as function of	90-day hospital
			≥200 THR	discharge	readmission (<65
			surgeries per	destination.	years: adjusted
			year. This was		odds ratio [aOR]:
			the case for		4.06, 95% CI:
			those <65		3.49-4.74; aOR:
			years (P <		2.05, 95% CI:
			.001) as well		1.70-2.46,
			as among those		respectively; ≥65
			≥65 years (P =		years: aOR: 4.32,
			.019).		95% CI: 3.67-

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RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

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Complication	5.09,
rates from the	respectively;
procedure	aOR: 1.74, 95%
were minimal	CI: 1.46-2.07,
	-
among all	respectively).
patients.	
Comorbidities	
such as	
hypertension,	
diabetes	
(uncomplicate	
d), renal	
failure, and	
liver disease	
were more	
common	
among AAs	
than whites (P	
<.001, all	
comparisons in	
both age	
groups). Other	
comorbidities	
including	
hypothyroidis	
m were more	
common	
among white	
patients	
compared to	
AAs (P < .001,	
both age	
groups).	

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Weiner	Retrospec	The purpose	A total of	The authors	74.7% were
JA, Adhia	tive	of this	41,832 patient	analyzed the	discharged home
AH,	cohort	investigation	who	Illinois	with 64.0%
Feinglass	study (3)	was to	underwent	Hospital	having a LOS of
JM, et al		evaluate	primary THA	Association	2 days or less.
		which patient	between 2016	COMPdata	Only 36.0% of
		characteristic	and 2018 were	administrative	patients had
		s are	included	database from	eLOS and 5.3%
		associated	within the	151 Illinois	had veLOS. Very
		with extended	study. 81.4%	nonfederal	few of those
		length of stay	of patients	hospitals to	(7.5%) whose
		(eLOS) of	were non-	evaluate	LOS was 2 days
		greater than 2	Hispanic white	patients who	or less were not
		days and	and 92.6% had	underwent	discharged home.
		nonhome	osteoarthritis	primary THA	That was the
		discharge in	(OA) as a	from 2016 to	opposite trend
		patients	principal	2018. LOS	seen for those
		undergoing	diagnosis.	was classified	staying 3 to 4
		total hip	55.6% were	as 2 days or	days (53.7%) and
		arthroplasty	female, 60%	less, eLOS if	5 or more days
		(THA).	had a Charlson	greater than 2	(77.0%) after
			comorbidity	days, and very	THA, as they
			index (CCI) of	extended LOS	were more likely
			0, and 49.1%	(veLOS) if	to be discharged
			of THAs were	greater than 4	to a nonhome
			completed at	days. Chi	facility. Females
			an academic	square tests	represented
			institution.	were used to	65.8% of those
			Medicaid or	determine the	with a LOS of 3
			uninsured	significance	or 4 days.
			patients	of	Females were
			represented	associations	35% more likely
			5.1% of the	between home	than males
			included	discharge and	(Incidence Rate
			population and	LOS (grouped	Ratio [IRR] =
			3.9% of	as LOS 3 or 4	1.35, 95% CI
			patients	days and	1.29-1.40) to
			resided in a	veLOS) and	experience eLOS.
			low-income	patient sex,	Those aged 75
			zip code.	age, race and	years and older
				ethnicity,	were 47% more
				Illinois	likely to have
				region, low-	eLOS than those

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		1.51
	income zip	aged 65 to 74
	code,	years (IRR =
	Medicaid/unin	1.47, 95% CI
	sured, time	1.40-1.53).
	period,	Patients with a
	obesity, CCI,	CCI of 1 were
	principal	25% more likely
	diagnosis,	to have eLOS
	facility BPCI	(IRR = 1.25, 95%)
	status, facility	CI 1.20-1.30).
	academic	Patients with a
		CCI of 3 or
	status, facility	
	volume	greater were 59%
	quartile, and	more likely to
	Illinois	have eLOS (IRR
	region. A	= 1.59, 95% CI
	multiple	1.48-1.70). 41.5%
	Poisson	of patients with
	regression	veLOS were
	model was	older than 75,
	estimated to	compared to
	test the	21.9% in the
	simultaneous	overall cohort.
	association	Those older than
	between	75 years were
	patient and	59% more likely
	hospital	(IRR = 1.59, 95%)
	characteristics	CI 1.42-1.78)
	and nonhome	than those aged
	discharge,	65 to 74 years to
	eLOS, and	have veLOS.
	veLOS.	Non-Hispanic
		blacks were 42%
		more likely than
		non-Hispanic
		whites to have
		veLOS (IRR =
		1.42, 95% CI
		1.19-1.70).
		Medicaid and
		uninsured patients
		_
		were 67% more
		likely to have

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	T 00 1 1
	veLOS than those
	with other types
	of insurance (IRR
	= 1.67, 95%  CI
	1.33-2.09).
	Those with CCI
	of 3 or more were
	more than 226%
	more likely to
	have veLOS than
	those with CCI of
	0 (IRR = 3.26,
	95% CI 2.87-
	3.71). Those aged
	75 years, or more
	were 88% more
	likely than those
	65 to 74 years old
	to have nonhome
	discharge (IRR =
	1.88, 95% CI
	1.77-2.00). Those
	with a CCI score
	of 3 were 77%
	more likely to
	experience
	nonhome
	discharge when
	compared to
	those with a CCI
	of zero (IRR =
	1.77, 95% CI
	1.63-1.91).
	Medicaid or
	uninsured patients
	were 30% more
	likely to have a
	nonhome
	discharge (IRR =
	1.30, 95% CI
	1.13-1.49), and
	non-Hispanic
	black ethnicity,

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		which was 11% more likely to be associated with nonhome discharge than non-Hispanic white ethnicity (IRR = 1.11, 95% CI 1.00-1.23).

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Weng HH, Kaplan RM, Boscardin WJ, et al	Prospectiv e observatio nal study (2)	Pilots test the scope, acceptability, and efficacy of an educational videotape and tailored TKR decision aid designed to reduce disparities in TKR knowledge and expectations.	A total of 102 patients (54 African American, 48 Caucasian) completed the baseline survey and 64 patients attended the intervention. There were no significant differences by race between patients completing and those dropping out of the study.	African American and Caucasian male veteran volunteers ages 55-85 years with moderate to severe knee osteoarthritis (OA) were recruited. During group meetings, patients viewed a video about knee OA treatments and were provided a personalized arthritis report that presented predicted patient outcomes should they decide to undergo TKR. Patients completed baseline and postinterventi on questionnaires that included an adapted Western Ontario and McMaster Universities Osteoarthritis	At baseline (n = 102), African American patients expressed lower expectations about post-TKR outcomes than did Caucasian patients for both pain (WOMAC score 41 versus 34; P = 0.18) and physical function expectations (WOMAC score 38 versus 30; P = 0.13). Among African Americans who underwent the intervention, expected pain and physical function improved to 31 (P = 0.04 versus baseline) and 30 (P = 0.09 versus baseline), respectively. Caucasian patients' expectations changed little. Disparities in baseline knowledge and expectations about TKR may be improved with the combined educational video and tailored decision aid.
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	Index (WOMAC) instrument to measure post- TKR expectations (0-100 scale with higher scores reflecting poorer outcomes)	
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W/1.14 D.C	D -4	T1	A 4-4-1 C	T1/1	W/41.1 20 1
White RS,	Retrospec	The purpose	A total of	The authors	Within 30 days,
Sastow	tive	of this study	274,851 adult	analyzed the	15,273 (5.6%)
DL,	cohort	was to	patients who	California,	patients were
Gaber-	study (3)	examine	had undergone	Florida and	readmitted,
Baylis		differences in	THR surgery	New York	including 7.7% of
LK, et al		readmission	in California,	State Inpatient	Medicaid
		rates by	Florida or New	Databases	patients, 6.8% of
		insurance	York were	(SID),	Medicare
		payer, race,	included.	Healthcare	patients, and
		ethnicity and	154,695	Cost and	3.5% of patients
		income	(56.3%) of	Utilization	with private
		status.	patients had	Project,	insurance. After
			Medicare,	Agency for	30-day
			9,099 (3.3%)	Healthcare	readmission, 271
			had Medicaid	Research and	patients (1.8%)
			and 101,897	Quality to	died during their
			(37.1%) had	identify	hospitalization.
			private	patients who	When compared
			insurance.	underwent	to patients who
			227,354	THR from	were not
			(82.7%) of all	2007 to 2011.	readmitted within
			patients were	Inclusion	30 days, patients
			white, 15,644	criteria	readmitted within
			(5.8%) were	included	30 days were
			black and	patients who	more likely to be
			14,718 (5.7%)	had	older (69.62 ±
			were Hispanic.	undergone	13.18 vs. $66.03 \pm$
			155,597	THR surgery	12.30, P <
			(56.6%) of all	and were old	0.0001), be Black
			patients were	than 18 years	(7.4% vs. 5.6%, P
			female.	of age.	< 0.0001) or
				Exclusion	Hispanic (6.0%
				criteria	vs. 5.3%, P <
				included those	0.0001), live in
				with missing	the poorest
				data on	quartile of
				gender,	median household
				experienced	income in their
				inpatient	respective ZIP
				mortality	code (20.3% vs.
				during their	16.7%, P <
				index hospital	0.0001), have
				stay, had	Medicare (69.1%
				stay, nau	1v1cu1ca1c (09.170

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			55.50/ D <
		missing	vs. 55.5%, P <
		information	0.0001) and
		on hospital	Medicaid (4.6%
		length of stay	vs. 3.2%, P <
		(LOS) or days	0.0001) as
		to	insurance
		readmission	providers.
		data, had	Patients
		insufficient	readmitted within
		follow-up	30-days had an
		time or lacked	initial hospital
		primary	course with a
		insurance	longer length of
		status	stay (4 days vs. 3
		information.	days, $P < 0.0001$ )
		Categorical	and have greater
		variables were	total hospital
		compared	charges (\$69,471
		using Chi	vs. \$63,474, P <
		squared tests	0.0001) than
		or Fischer's	those not
		exact tests and	readmitted up to
		continuous	30 days
		variables were	postoperatively.
		compared	Additionally,
		using analysis	readmitted
		of variance	patients were
		(ANOVA) or	more likely to
		Kruskal-	have suffered
		Wallis tests.	cardiovascular,
		Logistic	pulmonary,
		regression	infectious, and
		analysis was	intraoperative
		completed to	complications
		evaluate the	during their initial
		effect of racial	postoperative
		and	hospitalization (P
		socioeconomi	< 0.0001 for
		c disparities	each). The most
		on 30 and 90-	common reasons
		day	for 30-day
		readmissions.	readmissions
		i Saciiii Soloiio.	were wound
			were wound

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		infection (15.7%
		Private insurance
		vs. 19.3%
		Uninsured), atrial
		fibrillation (5.9%
		Private insurance
		vs. 18.4%
		Medicare),
		urinary tract
		infection (6.3%
		Private insurance
		vs. 13.3%
		Medicare), and
		pneumonia (3.4%
		Private insurance
		vs. 6.9%
		Medicare).
		Within 90 days,
		28,075 (10.2%)
		patients were
		readmitted,
		including 14.5%
		of Medicaid
		patients, 11.9% of
		Medicare
		patients, and
		7.3% patients
		with private
		insurance. After
		90-day
		readmission, 432
		(1.5%) died
		during their
		hospitalization.
		When compared
		to patients who
		were not
		readmitted within
		90 days, patients
		readmitted within
		90 days were
		more likely to be
		older (68.39 ±

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1		
		13.45 vs. $65.98 \pm$
		12.22, P <
		0.0001), be Black
		(7.0% vs. 5.5%, P
		< 0.0001) or
		Hispanic (5.7%
		vs. 5.3%, P <
		0.0001), live in
		the poorest
		quartile of
		median household
		income in their
		respective ZIP
		code (19.7% vs.
		16.6%, P <
		0.0001), have
		Medicare (65.7%
		vs. 55.2%, P <
		0.0001) and
		Medicaid (4.7%
		vs. 3.2%, P <
		0.0001) as
		insurance
		providers.
		Patients
		readmitted within
		90-days had
		greater total
		hospital charges
		(\$68,767 vs.
		\$63,236, P <
		0.0001) than
		those not
		readmitted up to
		90 days
		postoperatively.
		The most
		common reasons
		for 90-day
		readmission
		compared to
		private insurance
		were atrial
		** OI O att 1 at

RACE, UTILIZATION, AND OUTCOMES IN TOTAL HIP AND KNEE ARTHROPLASTY. A SYSTEMATIC REVIEW ON HEALTH-CARE DISPARITIES

		C1 '11 .' (7 70/
		fibrillation (5.5%
		Private Insurance
		vs. 16.9%
		Medicare),
		urinary tract
		infection (4.5%
		Private insurance
		vs. 12.0%
		Medicare),
		wound infection
		(9.3% Private
		insurance vs.
		10.7% Other
		Insurance), and
		pneumonia (2.7%
		Private insurance
		vs. 6.2%
		Medicare).
		Patients insured
		by Medicare
		(Odds Ratio [OR]
		= 1.23, 95%
		Confidence
		Interval [CI]
		1.17–1.29, P <
		0.05) and
		Medicaid (OR =
		1.58, 95% CI
		1.44–1.73, P <
		0.05) had higher
		likelihoods of
		being readmitted
		up to 30 days
		postoperatively
		than patients with
		private insurance.
		Similarly,
		patients insured
		by Medicare (OR
		= 1.20, 95% CI
		1.16–1.25, P <
		0.05) and
		Medicaid (OR
		Medicald (OK

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I	T .	
		1.52, 95% CI
		1.42–1.62, P <
		0.05) also had
		higher likelihoods
		of being
		readmitted up to
		90 days
		postoperatively
		than patients with
		private insurance.
		Patients living in
		geographic areas
		with the highest
		median household
		income values of
		their state were
		less likely to be
		readmitted 30 and
		90 days
		postoperatively
		than those living
		in the poorest
		income quartiles
		of their state (30-
		day $OR = 0.89$ ,
		95% CI 0.85–
		0.94, $P < 0.05$ and
		90-day OR =
		0.91, 95% CI
		0.87–0.94, P <
		0.05). Blacks
		were more likely
		than Whites to be
		admitted up to 30
		and 90 days
		postoperatively
		(30-day OR =
		1.20, 95% CI
		1.11–1.29, P <
		0.05 and 90-day
		OR = 1.08, 95%
		CI 1.02–1.14, P <
		0.05).
		u.u <i>.</i> j.

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