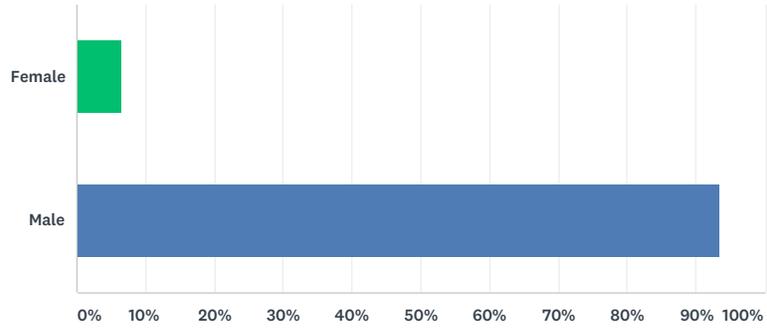


Metal Hypersensitivity Survey

Q1 Are you male or female?

Answered: 229 Skipped: 1

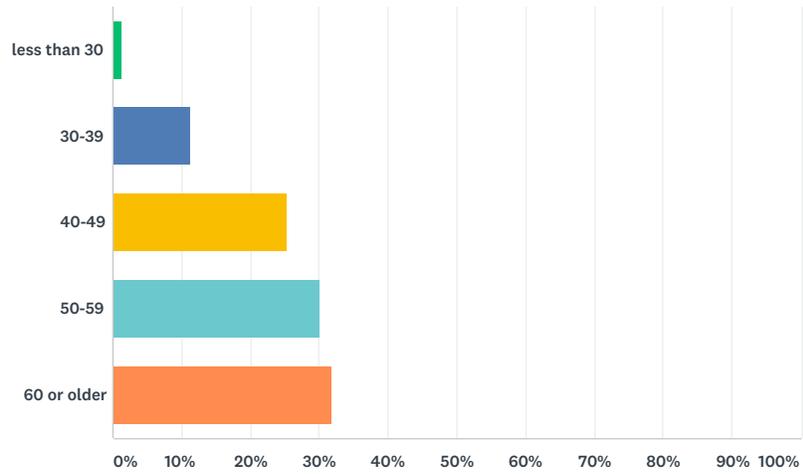


ANSWER CHOICES	RESPONSES	
Female	6.55%	15
Male	93.45%	214
TOTAL		229

Metal Hypersensitivity Survey

Q2 What is your age?

Answered: 229 Skipped: 1

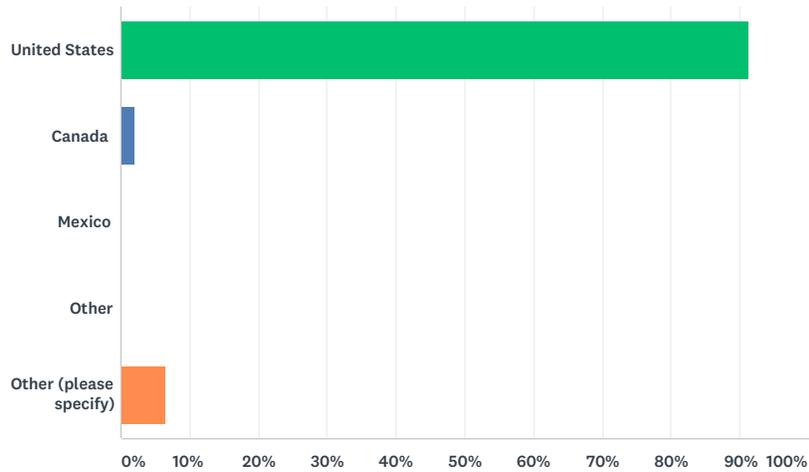


ANSWER CHOICES	RESPONSES	
less than 30	1.31%	3
30-39	11.35%	26
40-49	25.33%	58
50-59	30.13%	69
60 or older	31.88%	73
TOTAL		229

Metal Hypersensitivity Survey

Q3 In what country do you currently reside?

Answered: 228 Skipped: 2



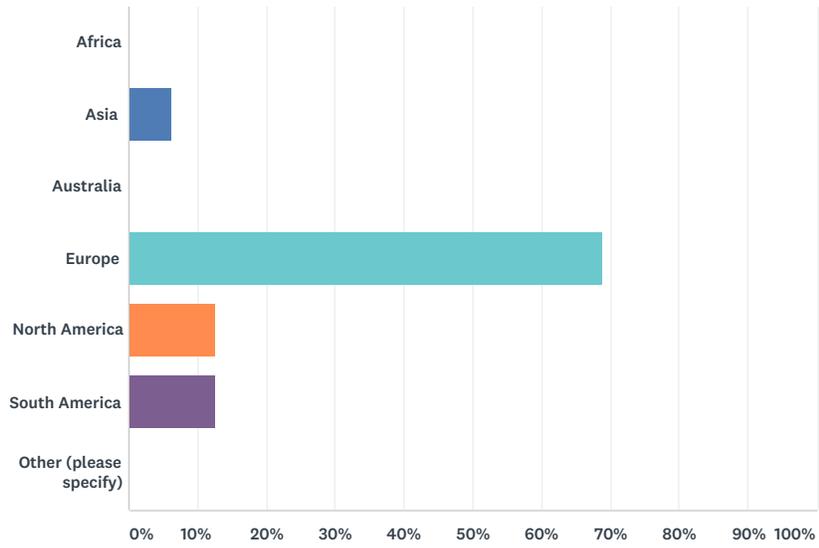
ANSWER CHOICES	RESPONSES	
United States	91.23%	208
Canada	2.19%	5
Mexico	0.00%	0
Other	0.00%	0
Other (please specify)	6.58%	15
TOTAL		228

#	OTHER (PLEASE SPECIFY)	DATE
1	uk	10/6/2015 9:23 AM
2	italy	9/18/2015 2:19 AM
3	italy	7/21/2015 6:17 AM
4	France	7/21/2015 3:46 AM
5	Japan	7/20/2015 11:50 PM
6	france	7/20/2015 3:19 PM
7	italy	7/20/2015 2:56 PM
8	Brazil	7/6/2015 7:22 AM
9	Italy	7/3/2015 2:23 AM
10	Hungary	7/1/2015 11:18 AM
11	Switzerland	6/30/2015 6:47 AM
12	italy	6/30/2015 5:54 AM
13	Italy	6/29/2015 11:17 PM
14	Chile	6/29/2015 1:34 PM
15	Sweden	6/29/2015 11:58 AM

Metal Hypersensitivity Survey

Q4 On which continent do you practice?

Answered: 16 Skipped: 214



ANSWER CHOICES	RESPONSES	
Africa	0.00%	0
Asia	6.25%	1
Australia	0.00%	0
Europe	68.75%	11
North America	12.50%	2
South America	12.50%	2
Other (please specify)	0.00%	0
TOTAL		16

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Metal Hypersensitivity Survey

Q5 In what country do you practice?

Answered: 19 Skipped: 211

#	RESPONSES	DATE
1	USA	10/26/2015 6:03 PM
2	scotland	10/6/2015 9:23 AM
3	italy	7/21/2015 6:17 AM
4	Japan	7/20/2015 11:50 PM
5	Canada	7/20/2015 8:00 PM
6	france	7/20/2015 3:19 PM
7	italy	7/20/2015 2:57 PM
8	Canada	7/13/2015 6:36 PM
9	Canada	7/12/2015 5:49 AM
10	Brazil	7/6/2015 7:22 AM
11	Canada	7/4/2015 8:26 AM
12	Italy	7/3/2015 2:23 AM
13	Hungary	7/1/2015 11:19 AM
14	Switzerland	6/30/2015 6:47 AM
15	italy	6/30/2015 5:55 AM
16	Italy	6/29/2015 11:18 PM
17	USA	6/29/2015 5:27 PM
18	Chile	6/29/2015 1:34 PM
19	Sweden	6/29/2015 11:59 AM

Metal Hypersensitivity Survey

Q6 In what town/village/city do you practice?

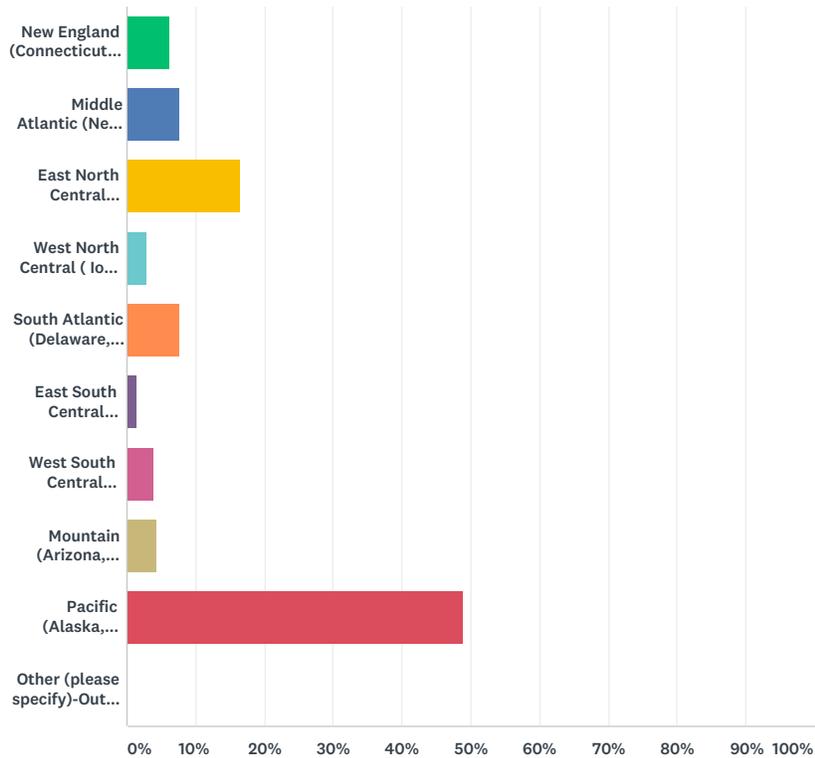
Answered: 17 Skipped: 213

#	RESPONSES	DATE
1	Baltimore MD	10/26/2015 6:03 PM
2	thurso	10/6/2015 9:23 AM
3	cattolica	7/21/2015 6:17 AM
4	Tokyo	7/20/2015 11:50 PM
5	nancy	7/20/2015 3:19 PM
6	milano	7/20/2015 2:57 PM
7	London	7/12/2015 5:49 AM
8	Sao Paulo	7/6/2015 7:22 AM
9	Kingston, Ontario	7/4/2015 8:26 AM
10	Milan	7/3/2015 2:23 AM
11	Bidapest	7/1/2015 11:19 AM
12	Zürich	6/30/2015 6:47 AM
13	milano	6/30/2015 5:55 AM
14	Cattolica	6/29/2015 11:18 PM
15	Los Angeles	6/29/2015 5:27 PM
16	Santiago	6/29/2015 1:34 PM
17	Stockholm	6/29/2015 11:59 AM

Metal Hypersensitivity Survey

Q7 US Region

Answered: 206 Skipped: 24



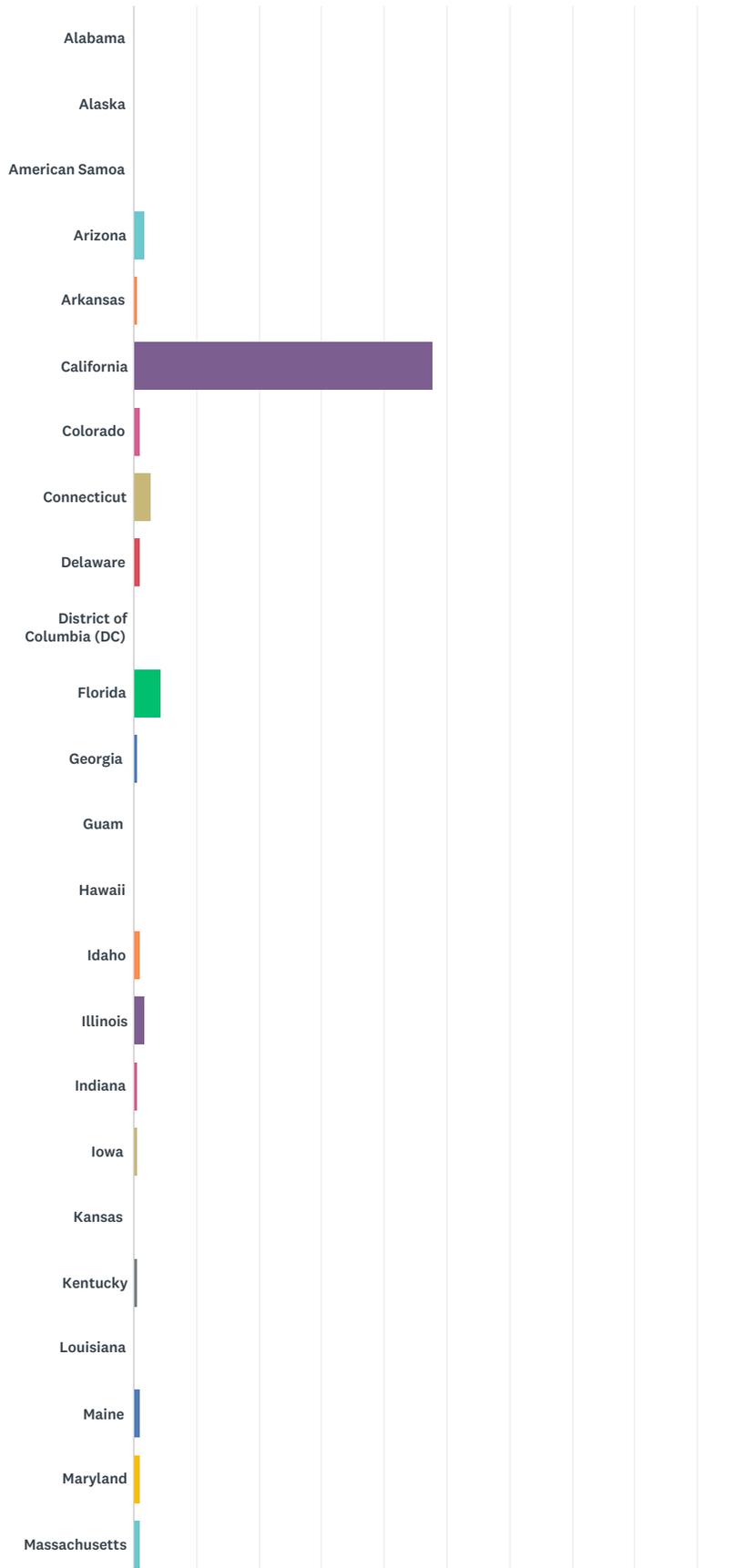
ANSWER CHOICES	RESPONSES
New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)	6.31% 13
Middle Atlantic (New Jersey, New York, and Pennsylvania)	7.77% 16
East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin)	16.50% 34
West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota)	2.91% 6
South Atlantic (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, Washington D.C., and West Virginia)	7.77% 16
East South Central (Alabama, Kentucky, Mississippi, and Tennessee)	1.46% 3
West South Central (Arkansas, Louisiana, Oklahoma, and Texas)	3.88% 8
Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming)	4.37% 9
Pacific (Alaska, California, Hawaii, Oregon, and Washington)	49.03% 101
Other (please specify)-Outside the US (Territory)	0.00% 0
TOTAL	206

#	OTHER (PLEASE SPECIFY)-OUTSIDE THE US (TERRITORY)	DATE
	There are no responses.	

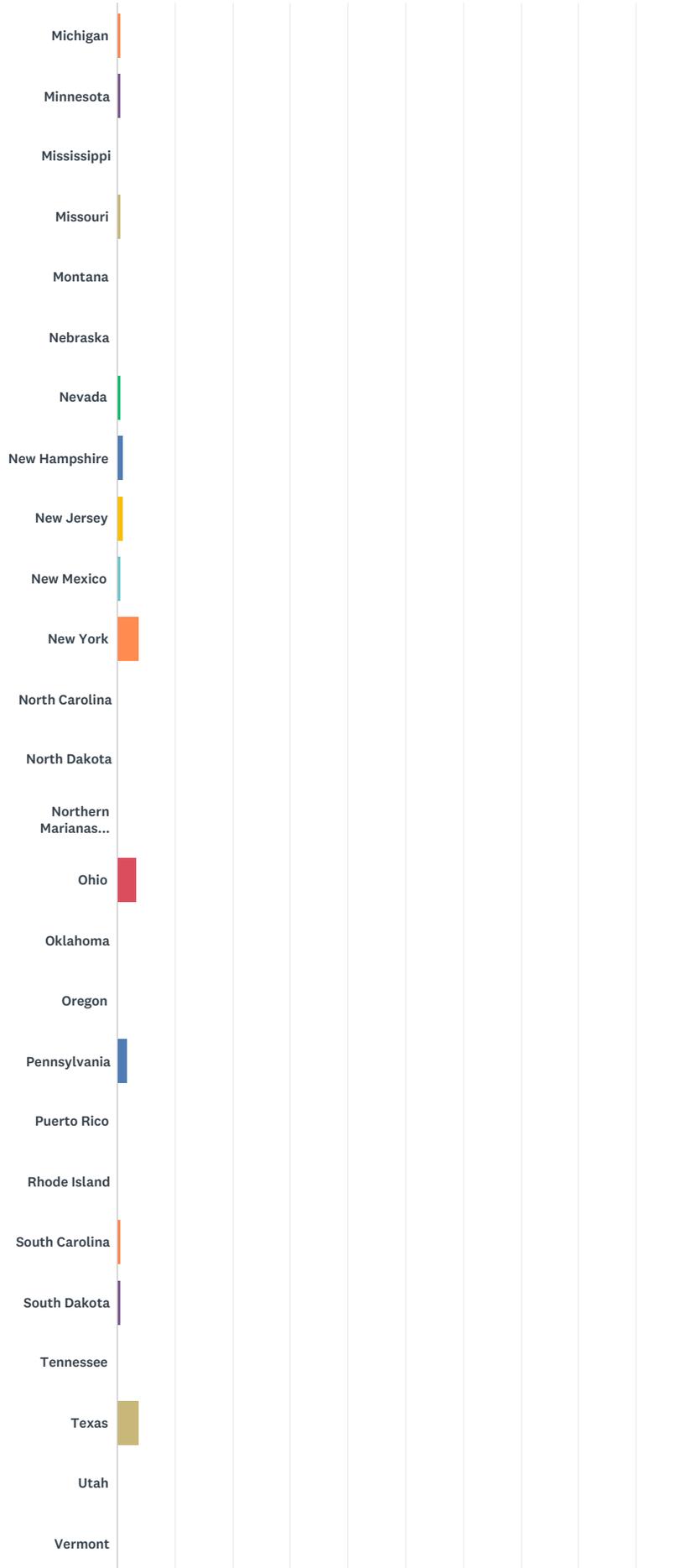
Metal Hypersensitivity Survey

Q8 In what state or U.S. territory do you currently work?

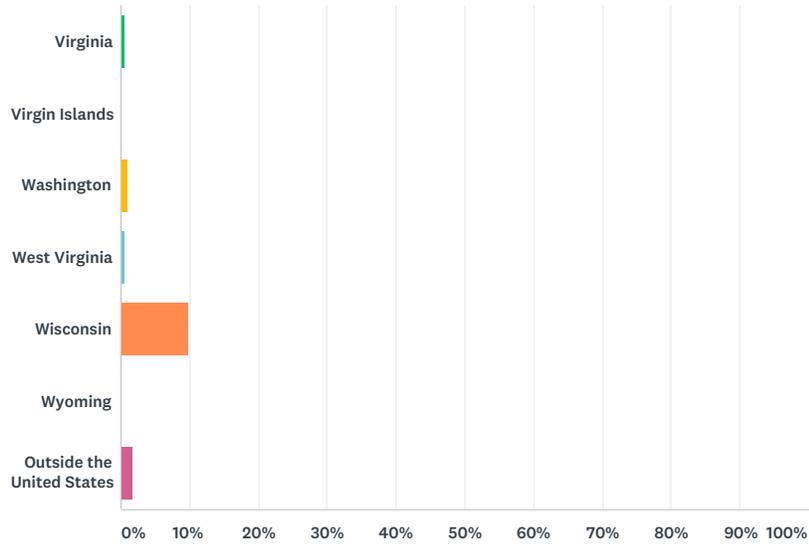
Answered: 182 Skipped: 48



Metal Hypersensitivity Survey



Metal Hypersensitivity Survey



ANSWER CHOICES	RESPONSES
Alabama	0.00% 0
Alaska	0.00% 0
American Samoa	0.00% 0
Arizona	1.65% 3
Arkansas	0.55% 1
California	47.80% 87
Colorado	1.10% 2
Connecticut	2.75% 5
Delaware	1.10% 2
District of Columbia (DC)	0.00% 0
Florida	4.40% 8
Georgia	0.55% 1
Guam	0.00% 0
Hawaii	0.00% 0
Idaho	1.10% 2
Illinois	1.65% 3
Indiana	0.55% 1
Iowa	0.55% 1
Kansas	0.00% 0
Kentucky	0.55% 1
Louisiana	0.00% 0
Maine	1.10% 2
Maryland	1.10% 2
Massachusetts	1.10% 2
Michigan	0.55% 1
Minnesota	0.55% 1
Mississippi	0.00% 0
Missouri	0.55% 1
Montana	0.00% 0

Metal Hypersensitivity Survey

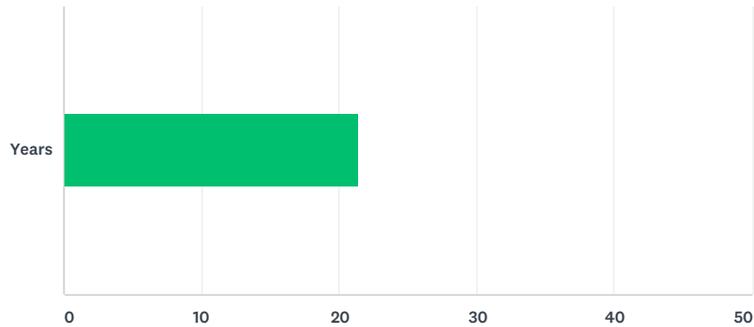
Nebraska	0.00%	0
Nevada	0.55%	1
New Hampshire	1.10%	2
New Jersey	1.10%	2
New Mexico	0.55%	1
New York	3.85%	7
North Carolina	0.00%	0
North Dakota	0.00%	0
Northern Marianas Islands	0.00%	0
Ohio	3.30%	6
Oklahoma	0.00%	0
Oregon	0.00%	0
Pennsylvania	1.65%	3
Puerto Rico	0.00%	0
Rhode Island	0.00%	0
South Carolina	0.55%	1
South Dakota	0.55%	1
Tennessee	0.00%	0
Texas	3.85%	7
Utah	0.00%	0
Vermont	0.00%	0
Virginia	0.55%	1
Virgin Islands	0.00%	0
Washington	1.10%	2
West Virginia	0.55%	1
Wisconsin	9.89%	18
Wyoming	0.00%	0
Outside the United States	1.65%	3
TOTAL		182

#	OUTSIDE THE UNITED STATES	DATE
1	WI	7/16/2015 7:21 PM
2	Cal	7/8/2015 2:37 AM
3	Pennsylvania	6/30/2015 2:37 PM

Metal Hypersensitivity Survey

Q9 About how long have you been practicing orthopaedics?

Answered: 200 Skipped: 30



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
Years	21	4,286	200
Total Respondents: 200			

#	YEARS	DATE
1	1	11/10/2015 11:06 AM
2	1	11/8/2015 6:21 PM
3	18	11/6/2015 4:08 PM
4	4	11/4/2015 8:21 PM
5	17	10/31/2015 7:23 AM
6	5	10/30/2015 3:36 PM
7	13	10/30/2015 10:07 AM
8	1	10/29/2015 7:42 PM
9	13	10/29/2015 1:21 PM
10	33	10/28/2015 3:09 PM
11	8	10/28/2015 12:19 AM
12	24	10/27/2015 10:10 PM
13	4	10/27/2015 9:07 PM
14	7	10/27/2015 8:00 PM
15	9	10/27/2015 6:56 PM
16	27	10/27/2015 2:17 PM
17	4	10/27/2015 12:50 PM
18	9	10/27/2015 9:28 AM
19	30	10/27/2015 7:07 AM
20	7	10/27/2015 4:10 AM
21	4	10/26/2015 10:57 PM
22	11	10/26/2015 10:28 PM
23	16	10/26/2015 9:46 PM
24	19	10/26/2015 9:10 PM
25	12	10/26/2015 8:15 PM
26	6	10/26/2015 7:48 PM
27	5	10/26/2015 7:28 PM
28	14	10/26/2015 7:20 PM
29	10	10/26/2015 7:11 PM
30	13	10/26/2015 6:39 PM
31	6	10/26/2015 6:37 PM
32	2	10/26/2015 6:28 PM

Metal Hypersensitivity Survey

33	2	10/26/2015 6:25 PM
34	27	10/26/2015 6:23 PM
35	20	10/26/2015 6:22 PM
36	8	10/26/2015 6:16 PM
37	27	10/26/2015 6:04 PM
38	32	10/26/2015 5:56 PM
39	7	10/26/2015 5:33 PM
40	12	10/6/2015 11:01 PM
41	31	9/27/2015 6:59 AM
42	26	8/22/2015 1:34 PM
43	35	8/3/2015 6:28 PM
44	20	8/2/2015 7:33 PM
45	40	7/28/2015 11:48 PM
46	25	7/28/2015 7:45 PM
47	20	7/28/2015 10:23 AM
48	39	7/28/2015 9:39 AM
49	23	7/27/2015 11:51 PM
50	8	7/24/2015 3:27 PM
51	18	7/24/2015 2:54 PM
52	15	7/24/2015 12:24 PM
53	25	7/24/2015 12:24 PM
54	25	7/24/2015 10:44 AM
55	36	7/23/2015 6:47 PM
56	21	7/23/2015 1:07 AM
57	34	7/22/2015 10:13 PM
58	50	7/22/2015 9:23 PM
59	25	7/22/2015 2:24 PM
60	42	7/22/2015 1:10 PM
61	20	7/22/2015 12:51 PM
62	20	7/22/2015 12:40 PM
63	51	7/22/2015 10:47 AM
64	20	7/22/2015 10:04 AM
65	20	7/21/2015 9:44 PM
66	20	7/21/2015 10:18 AM
67	33	7/21/2015 9:48 AM
68	31	7/21/2015 6:39 AM
69	25	7/21/2015 6:18 AM
70	35	7/20/2015 11:52 PM
71	27	7/20/2015 8:44 PM
72	10	7/20/2015 8:00 PM
73	33	7/20/2015 7:41 PM
74	26	7/20/2015 4:06 PM
75	31	7/20/2015 3:59 PM
76	30	7/20/2015 3:30 PM
77	20	7/20/2015 3:20 PM
78	25	7/20/2015 2:59 PM
79	25	7/20/2015 2:49 PM
80	15	7/20/2015 1:34 PM
81	16	7/20/2015 9:09 AM
82	15	7/20/2015 8:50 AM
83	30	7/19/2015 3:28 PM

Metal Hypersensitivity Survey

84	21	7/19/2015 10:50 AM
85	15	7/19/2015 8:50 AM
86	15	7/19/2015 8:28 AM
87	8	7/19/2015 7:54 AM
88	21	7/19/2015 12:01 AM
89	25	7/18/2015 11:25 PM
90	27	7/18/2015 7:05 PM
91	30	7/18/2015 5:41 PM
92	25	7/18/2015 1:21 PM
93	32	7/18/2015 12:59 PM
94	40	7/18/2015 11:32 AM
95	35	7/18/2015 11:22 AM
96	10	7/18/2015 10:41 AM
97	10	7/18/2015 9:10 AM
98	24	7/18/2015 2:51 AM
99	8	7/17/2015 11:49 PM
100	40	7/17/2015 11:28 PM
101	15	7/17/2015 10:36 PM
102	31	7/17/2015 10:13 PM
103	14	7/17/2015 9:59 PM
104	30	7/17/2015 9:39 PM
105	15	7/17/2015 9:12 PM
106	40	7/17/2015 8:23 PM
107	29	7/17/2015 6:21 PM
108	45	7/17/2015 6:21 PM
109	40	7/17/2015 6:17 PM
110	25	7/17/2015 10:04 AM
111	25	7/16/2015 7:43 PM
112	13	7/16/2015 7:23 PM
113	21	7/16/2015 6:50 PM
114	1	7/16/2015 6:03 PM
115	23	7/16/2015 4:51 PM
116	16	7/16/2015 4:37 PM
117	35	7/16/2015 1:46 PM
118	30	7/16/2015 1:38 PM
119	28	7/16/2015 1:34 PM
120	20	7/16/2015 1:04 PM
121	14	7/16/2015 12:53 PM
122	5	7/15/2015 9:51 PM
123	17	7/15/2015 9:21 PM
124	9	7/15/2015 7:35 PM
125	10	7/13/2015 6:36 PM
126	30	7/13/2015 9:44 AM
127	30	7/12/2015 5:30 PM
128	19	7/12/2015 5:51 AM
129	16	7/11/2015 5:41 AM
130	17	7/10/2015 5:25 PM
131	30	7/10/2015 7:40 AM
132	19	7/10/2015 6:30 AM
133	31	7/10/2015 2:28 AM
134	40	7/9/2015 6:59 PM

Metal Hypersensitivity Survey

135	38	7/9/2015 11:55 AM
136	34	7/9/2015 1:16 AM
137	20	7/8/2015 11:33 PM
138	39	7/8/2015 11:20 PM
139	25	7/8/2015 7:27 PM
140	23	7/8/2015 5:19 PM
141	1	7/8/2015 12:20 PM
142	15	7/8/2015 12:00 PM
143	3	7/8/2015 11:52 AM
144	40	7/8/2015 2:47 AM
145	13	7/7/2015 11:36 PM
146	35	7/7/2015 10:35 PM
147	22	7/7/2015 9:15 PM
148	4	7/7/2015 8:51 PM
149	40	7/7/2015 8:20 PM
150	24	7/7/2015 7:47 PM
151	24	7/7/2015 7:23 PM
152	45	7/7/2015 6:31 PM
153	5	7/7/2015 1:58 PM
154	20	7/7/2015 12:47 PM
155	25	7/6/2015 7:24 AM
156	30	7/5/2015 12:31 PM
157	29	7/5/2015 7:09 AM
158	7	7/4/2015 8:27 AM
159	5	7/3/2015 11:44 PM
160	30	7/3/2015 10:44 PM
161	30	7/3/2015 6:49 PM
162	8	7/3/2015 12:03 PM
163	9	7/3/2015 9:55 AM
164	15	7/3/2015 2:30 AM
165	32	7/2/2015 6:27 PM
166	16	7/2/2015 4:47 PM
167	35	7/2/2015 12:41 PM
168	18	7/2/2015 11:54 AM
169	12	7/2/2015 11:39 AM
170	29	7/1/2015 11:21 AM
171	34	7/1/2015 11:09 AM
172	40	7/1/2015 7:54 AM
173	21	6/30/2015 11:25 PM
174	5	6/30/2015 8:53 PM
175	35	6/30/2015 5:09 PM
176	15	6/30/2015 4:16 PM
177	35	6/30/2015 2:39 PM
178	28	6/30/2015 12:44 PM
179	27	6/30/2015 12:32 PM
180	20	6/30/2015 6:48 AM
181	13	6/30/2015 5:55 AM
182	20	6/29/2015 11:18 PM
183	7	6/29/2015 10:39 PM
184	15	6/29/2015 7:13 PM
185	25	6/29/2015 5:27 PM

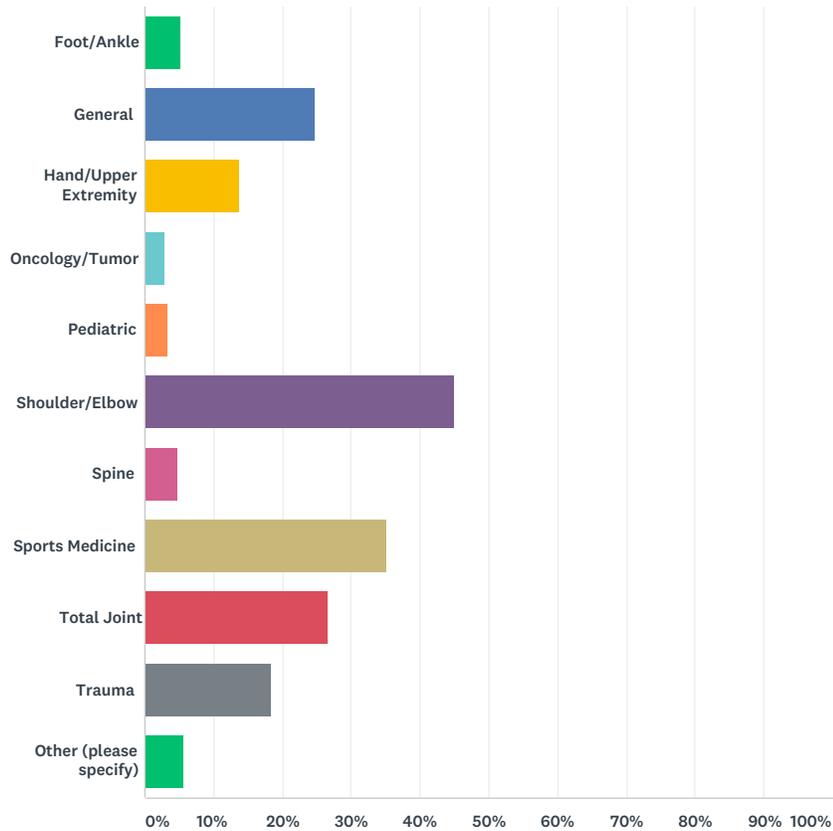
Metal Hypersensitivity Survey

186	34	6/29/2015 4:38 PM
187	30	6/29/2015 3:29 PM
188	16	6/29/2015 3:21 PM
189	24	6/29/2015 2:17 PM
190	20	6/29/2015 1:57 PM
191	30	6/29/2015 1:42 PM
192	16	6/29/2015 1:35 PM
193	10	6/29/2015 1:23 PM
194	28	6/29/2015 1:14 PM
195	40	6/29/2015 12:00 PM
196	28	6/29/2015 11:44 AM
197	35	6/29/2015 11:28 AM
198	18	6/29/2015 11:22 AM
199	15	6/29/2015 11:19 AM
200	9	6/29/2015 11:16 AM

Metal Hypersensitivity Survey

Q10 Type of Orthopaedic practice? Check all that apply

Answered: 211 Skipped: 19



ANSWER CHOICES	RESPONSES	
Foot/Ankle	5.21%	11
General	24.64%	52
Hand/Upper Extremity	13.74%	29
Oncology/Tumor	2.84%	6
Pediatric	3.32%	7
Shoulder/Elbow	45.02%	95
Spine	4.74%	10
Sports Medicine	35.07%	74
Total Joint	26.54%	56
Trauma	18.48%	39
Other (please specify)	5.69%	12
Total Respondents: 211		

#	OTHER (PLEASE SPECIFY)	DATE
1	shoulder and Knee	10/27/2015 12:59 AM
2	50	10/26/2015 6:25 PM
3	Ortho Infection	7/22/2015 10:25 PM
4	RETIRED	7/22/2015 10:47 AM
5	Adult knee	7/18/2015 11:32 AM
6	med legal workers compensation	7/18/2015 11:22 AM
7	work comp evaluation	7/17/2015 6:21 PM

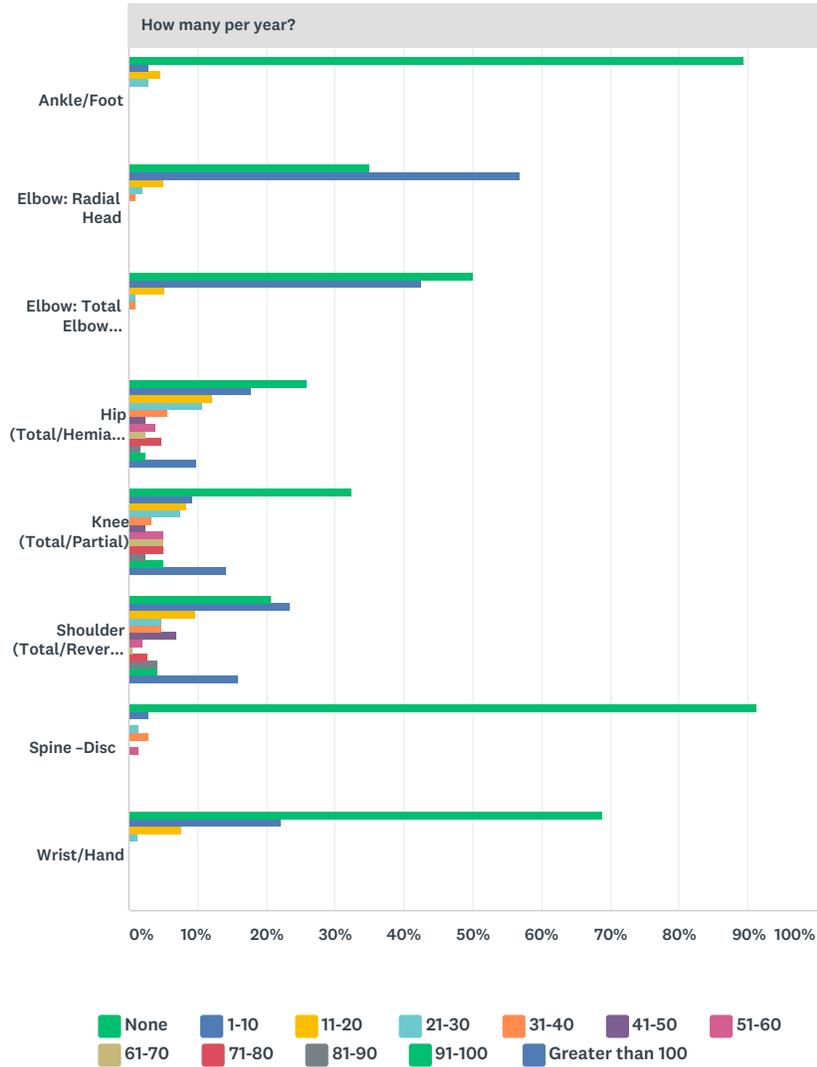
Metal Hypersensitivity Survey

8	Knee	7/17/2015 6:17 PM
9	adult recon - emphasis on shoulder	7/10/2015 7:40 AM
10	Knee	7/10/2015 2:28 AM
11	semiretired- do some hospitalist work	7/8/2015 12:39 PM
12	Office consultations, Med legal non operative x12 years	7/7/2015 8:20 PM

Metal Hypersensitivity Survey

Q11 Arthroplasty procedures: Do you perform? How many per year? (Only complete for the procedures that you perform)

Answered: 195 Skipped: 35

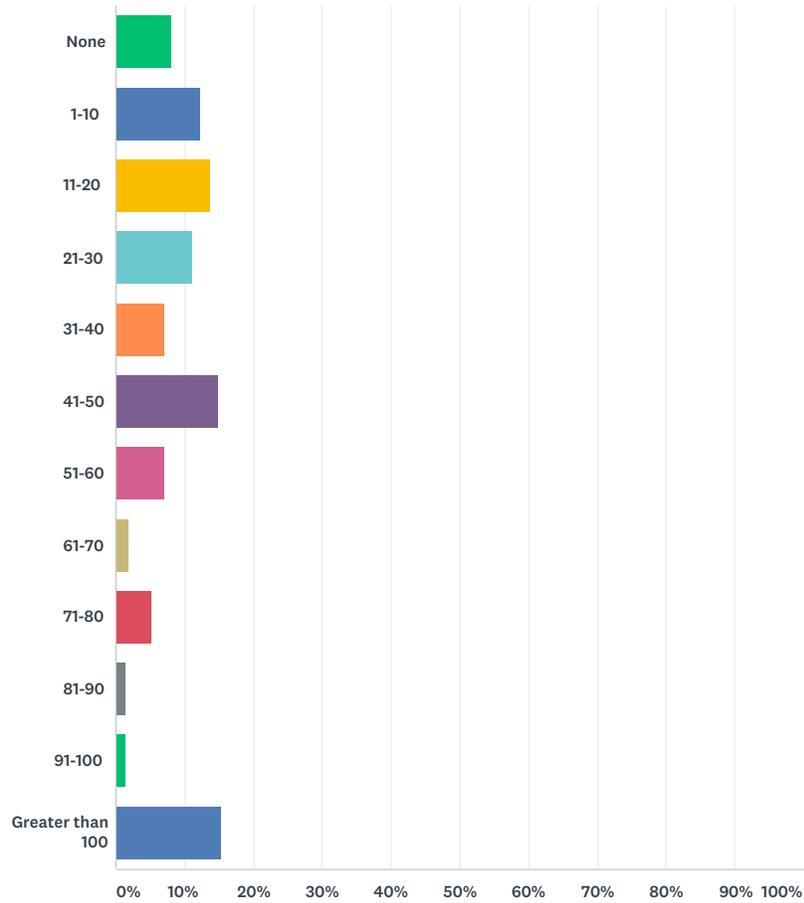


How many per year?												
	NONE	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	GREATER THAN 100
Ankle/Foot	89.39% 59	3.03% 2	4.55% 3	3.03% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Elbow: Radial Head	35.00% 35	57.00% 57	5.00% 5	2.00% 2	1.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Elbow: Total Elbow Arthroplasty/Hemiarthroplasty	50.00% 47	42.55% 40	5.32% 5	1.06% 1	1.06% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Hip (Total/Hemiarthroplasty)	26.02% 32	17.89% 22	12.20% 15	10.57% 13	5.69% 7	2.44% 3	4.07% 5	2.44% 3	4.88% 6	1.63% 2	2.44% 3	9.76% 12
Knee (Total/Partial)	32.50% 39	9.17% 11	8.33% 10	7.50% 9	3.33% 4	2.50% 3	5.00% 6	5.00% 6	5.00% 6	2.50% 3	5.00% 6	14.17% 17
Shoulder (Total/Reverse/Hemiarthroplasty)	20.69% 30	23.45% 34	9.66% 14	4.83% 7	4.83% 7	6.90% 10	2.07% 3	0.69% 1	2.76% 4	4.14% 6	4.14% 6	15.86% 23
Spine -Disc	91.18% 62	2.94% 2	0.00% 0	1.47% 1	2.94% 2	0.00% 0	1.47% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Wrist/Hand	68.83% 53	22.08% 17	7.79% 6	1.30% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0

Metal Hypersensitivity Survey

Q12 How many internal fixation or fusion (with hardware) procedures do you perform each year? Choose one.

Answered: 209 Skipped: 21

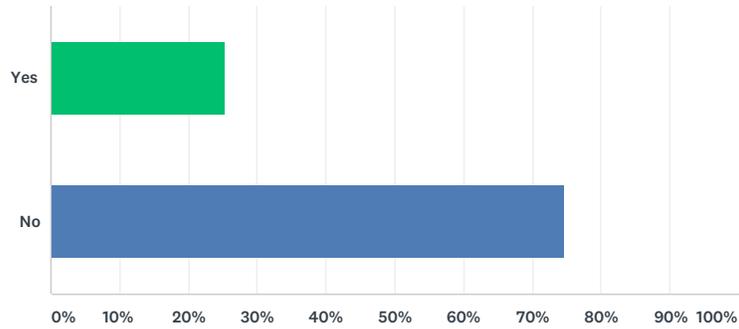


ANSWER CHOICES	RESPONSES	
None	8.13%	17
1-10	12.44%	26
11-20	13.88%	29
21-30	11.00%	23
31-40	7.18%	15
41-50	14.83%	31
51-60	7.18%	15
61-70	1.91%	4
71-80	5.26%	11
81-90	1.44%	3
91-100	1.44%	3
Greater than 100	15.31%	32
TOTAL		209

Metal Hypersensitivity Survey

Q13 Have you had a patient develop a metal allergy to an implant you used?

Answered: 206 Skipped: 24

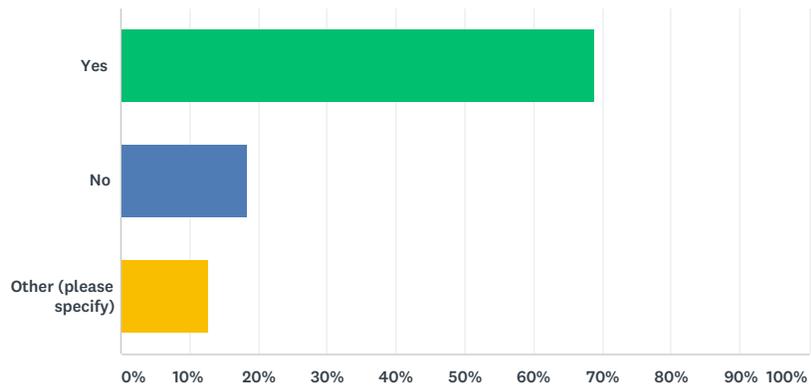


ANSWER CHOICES	RESPONSES	
Yes	25.24%	52
No	74.76%	154
TOTAL		206

Metal Hypersensitivity Survey

Q14 Do you believe that metal allergies occur to orthopedic implants?

Answered: 157 Skipped: 73



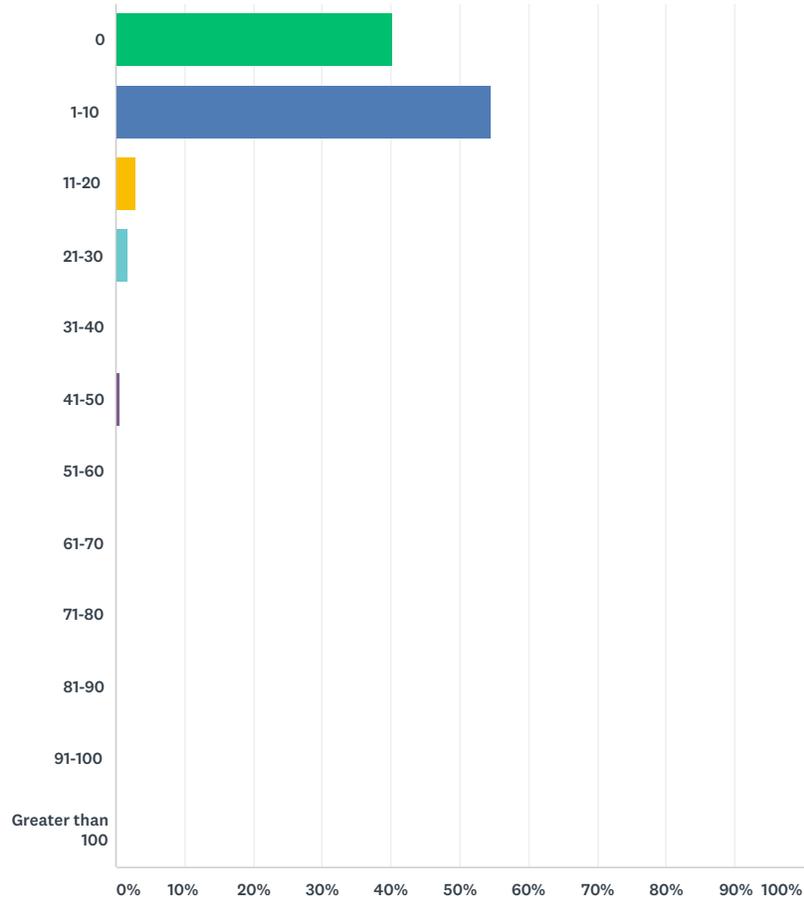
ANSWER CHOICES	RESPONSES	
Yes	68.79%	108
No	18.47%	29
Other (please specify)	12.74%	20
TOTAL		157

#	OTHER (PLEASE SPECIFY)	DATE
1	Not sure	10/29/2015 1:21 PM
2	I don't know	10/26/2015 6:37 PM
3	rarely	7/24/2015 12:25 PM
4	Almost never most are indolent infections not metal hypersensitivity	7/24/2015 10:45 AM
5	don't know	7/20/2015 1:35 PM
6	probably	7/18/2015 11:23 AM
7	yes, but extremely rare	7/17/2015 10:05 AM
8	extremely rarely	7/16/2015 4:52 PM
9	Probably extremely rare; much rarer than reported	7/16/2015 1:56 PM
10	i have not seen one	7/16/2015 1:34 PM
11	Exceedingly rare	7/8/2015 12:08 PM
12	I have not seen a case, & am aware of none.	7/7/2015 10:38 PM
13	Literature supports chrome cobalt allergy	7/7/2015 8:21 PM
14	Doubtful, but possible	7/7/2015 7:49 PM
15	most I believe are occult infections	7/7/2015 6:32 PM
16	Allergy tests are skin driven - rare to be as allergenic when on bone	7/2/2015 4:48 PM
17	I think people have metal allergies that we are unaware of.	7/2/2015 11:54 AM
18	Exceedingly rare most are probably indolent infections	6/29/2015 2:18 PM
19	Vanishingly rarely. All I have seen referred to me have been undiagnosed infections the index surgeon failed to recognize.	6/29/2015 1:24 PM
20	I have never made that Dx	6/29/2015 11:29 AM

Metal Hypersensitivity Survey

Q15 How many cases of metal hypersensitivity/reaction have you seen? Choose one.

Answered: 172 Skipped: 58

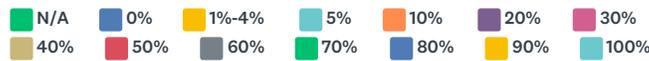
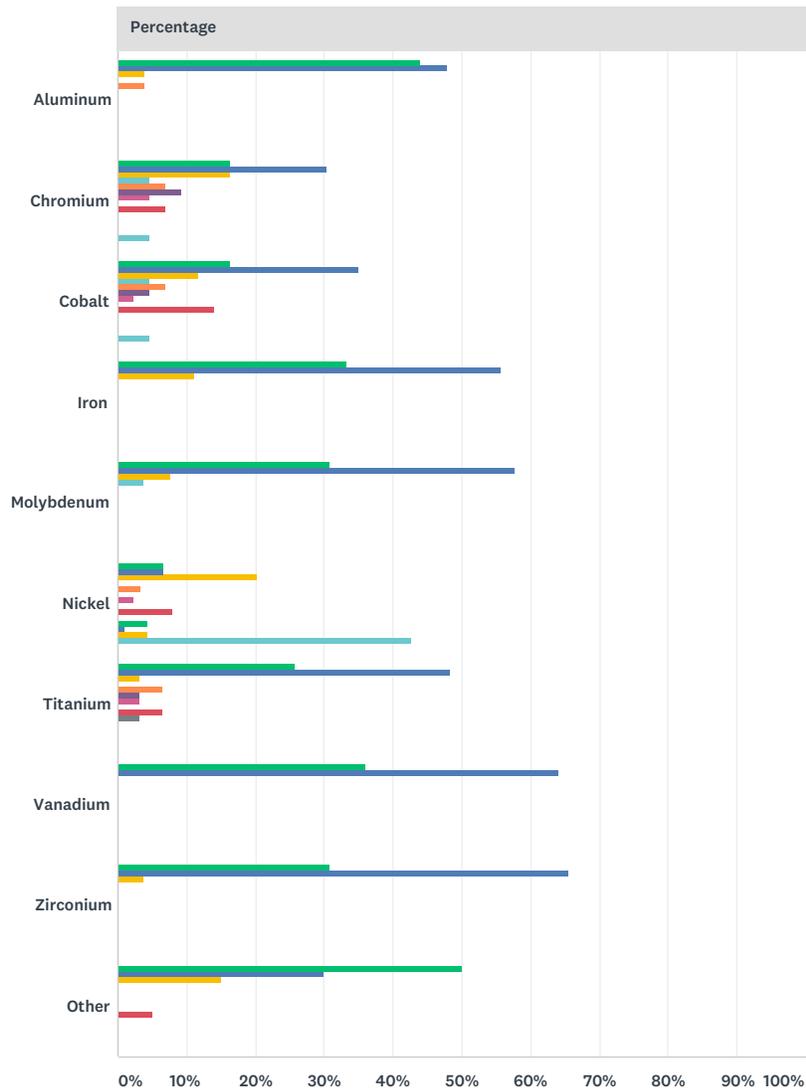


ANSWER CHOICES	RESPONSES	
0	40.12%	69
1-10	54.65%	94
11-20	2.91%	5
21-30	1.74%	3
31-40	0.00%	0
41-50	0.58%	1
51-60	0.00%	0
61-70	0.00%	0
71-80	0.00%	0
81-90	0.00%	0
91-100	0.00%	0
Greater than 100	0.00%	0
TOTAL		172

Metal Hypersensitivity Survey

Q16 What metals have you seen reactions to and what percentage?

Answered: 100 Skipped: 130



Percentage														
	N/A	0%	1%-4%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Aluminum	44.00% 11	48.00% 12	4.00% 1	0.00% 0	4.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Chromium	16.28% 7	30.23% 13	16.28% 7	4.65% 2	6.98% 3	9.30% 4	4.65% 2	0.00% 0	6.98% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	4.65% 2
Cobalt	16.28% 7	34.88% 15	11.63% 5	4.65% 2	6.98% 3	4.65% 2	2.33% 1	0.00% 0	13.95% 6	0.00% 0	0.00% 0	0.00% 0	0.00% 0	4.65% 2
Iron	33.33% 9	55.56% 15	11.11% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Molybdenum	30.77% 8	57.69% 15	7.69% 2	3.85% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Nickel	6.74% 6	6.74% 6	20.22% 18	0.00% 0	3.37% 3	0.00% 0	2.25% 2	0.00% 0	7.87% 7	0.00% 0	4.49% 4	1.12% 1	4.49% 4	42.70% 38
Titanium	25.81% 8	48.39% 15	3.23% 1	0.00% 0	6.45% 2	3.23% 1	3.23% 1	0.00% 0	6.45% 2	3.23% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0

Metal Hypersensitivity Survey

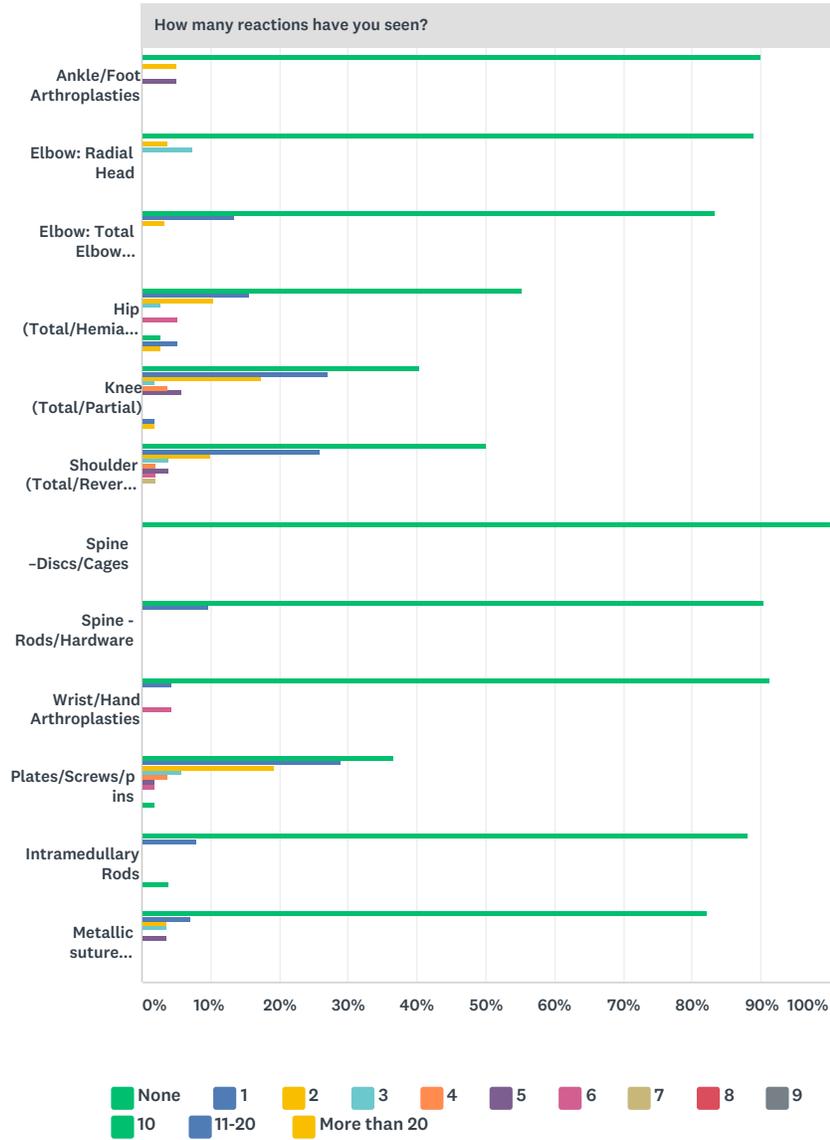
Vanadium	36.00% 9	64.00% 16	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Zirconium	30.77% 8	65.38% 17	3.85% 1	0.00% 0										
Other	50.00% 10	30.00% 6	15.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	5.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0

#	OTHER (PLEASE SPECIFY)	DATE
1	none yet. just getting started	11/10/2015 11:06 AM
2	Nickel is the only one I have identified	11/4/2015 8:23 PM
3	Not sure	10/29/2015 1:23 PM
4	These are Adverse Reaction to Metal of ASR	7/27/2015 11:53 PM
5	Stainless steel	7/24/2015 3:29 PM
6	Need activated lymphocyte tests to answer	7/23/2015 6:51 PM
7	none	7/22/2015 9:24 PM
8	dont really know, assume nickel	7/22/2015 5:57 PM
9	0	7/20/2015 4:06 PM
10	Methyl Methacrolate (Bone Cement)	7/20/2015 2:58 PM
11	1 case only in residency	7/19/2015 7:55 AM
12	nA	7/18/2015 11:27 AM
13	does not apply	7/17/2015 6:22 PM
14	Hard to know. Always assumed it was the nickel that the patient was allergic to.	7/10/2015 5:27 PM
15	Don't understand the question. I had one patient with allergy to nickel.	7/9/2015 7:01 PM
16	less than 1%, but that option was not available other than 0	7/9/2015 3:37 PM
17	None	7/7/2015 10:39 PM
18	Did 10 metal on metal hips, one lytic reaction	7/7/2015 8:24 PM
19	Stainless steel	7/2/2015 12:43 PM
20	Titanium, cobalt	6/29/2015 8:24 PM
21	0 for all	6/29/2015 2:19 PM
22	all are by history...not proven Metal type??	6/29/2015 11:31 AM

Metal Hypersensitivity Survey

Q17 What implants have shown reactions : How many reactions have you seen? (Only complete for the procedures that you perform)

Answered: 106 Skipped: 124



How many reactions have you seen?														N	T
	NONE	1	2	3	4	5	6	7	8	9	10	11-20	2		
Ankle/Foot Arthroplasties	90.00%	0.00%	5.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	
Elbow: Radial Head	88.89%	0.00%	3.70%	7.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	
Elbow: Total Elbow Arthroplasty/Hemiarthroplasty	83.33%	13.33%	3.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	
Hip (Total/Hemiarthroplasty)	55.26%	15.79%	10.53%	2.63%	0.00%	0.00%	5.26%	0.00%	0.00%	0.00%	0.00%	2.63%	5.26%	2	
Knee (Total/Partial)	40.38%	26.92%	17.31%	1.92%	3.85%	5.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	1	
Shoulder (Total/Reverse/Hemiarthroplasty)	50.00%	26.00%	10.00%	4.00%	2.00%	4.00%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0	

Metal Hypersensitivity Survey

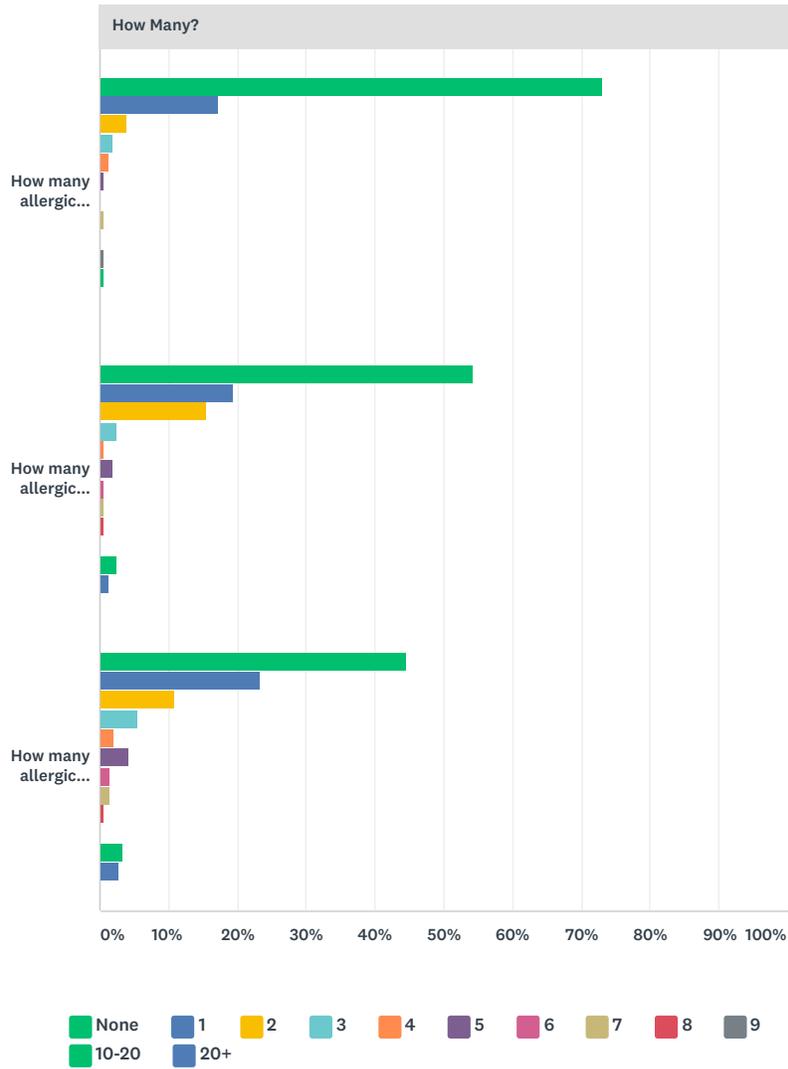
Spine –Discs/Cages	100.00% 19	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	C
Spine - Rods/Hardware	90.48% 19	9.52% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	C
Wrist/Hand Arthroplasties	91.30% 21	4.35% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	4.35% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	C
Plates/Screws/pins	36.54% 19	28.85% 15	19.23% 10	5.77% 3	3.85% 2	1.92% 1	1.92% 1	0.00% 0	0.00% 0	0.00% 0	1.92% 1	0.00% 0	C	
Intramedullary Rods	88.00% 22	8.00% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	4.00% 1	0.00% 0	C	
Metallic suture anchors/interference screw	82.14% 23	7.14% 2	3.57% 1	3.57% 1	0.00% 0	3.57% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	C	

#	OTHER (PLEASE SPECIFY)	DATE
1	none yet	11/10/2015 11:06 AM
2	No field to answer per type	10/27/2015 9:29 AM
3	none	7/22/2015 9:24 PM
4	0	7/20/2015 4:06 PM
5	none	7/17/2015 6:22 PM
6	i have some patients with presumed/known allergies, in whom we've avoided that metal	7/16/2015 4:40 PM
7	I have had N2 Hardened shoulder prostheses made for those with hx of nickel allergy	7/9/2015 3:37 PM
8	0 for all	6/29/2015 2:19 PM
9	na	6/29/2015 11:31 AM

Metal Hypersensitivity Survey

Q18 How many allergic reactions to metal implants have you seen?

Answered: 155 Skipped: 75



How Many?													
	NONE	1	2	3	4	5	6	7	8	9	10-20	20+	TOTAL
How many allergic reactions to metal implants have you seen in the last year?	73.03% 111	17.11% 26	3.95% 6	1.97% 3	1.32% 2	0.66% 1	0.00% 0	0.66% 1	0.00% 0	0.66% 1	0.66% 1	0.00% 0	152
How many allergic reactions to metal implants have you seen in the last 5 year?	54.19% 84	19.35% 30	15.48% 24	2.58% 4	0.65% 1	1.94% 3	0.65% 1	0.65% 1	0.65% 1	0.00% 0	2.58% 4	1.29% 2	155

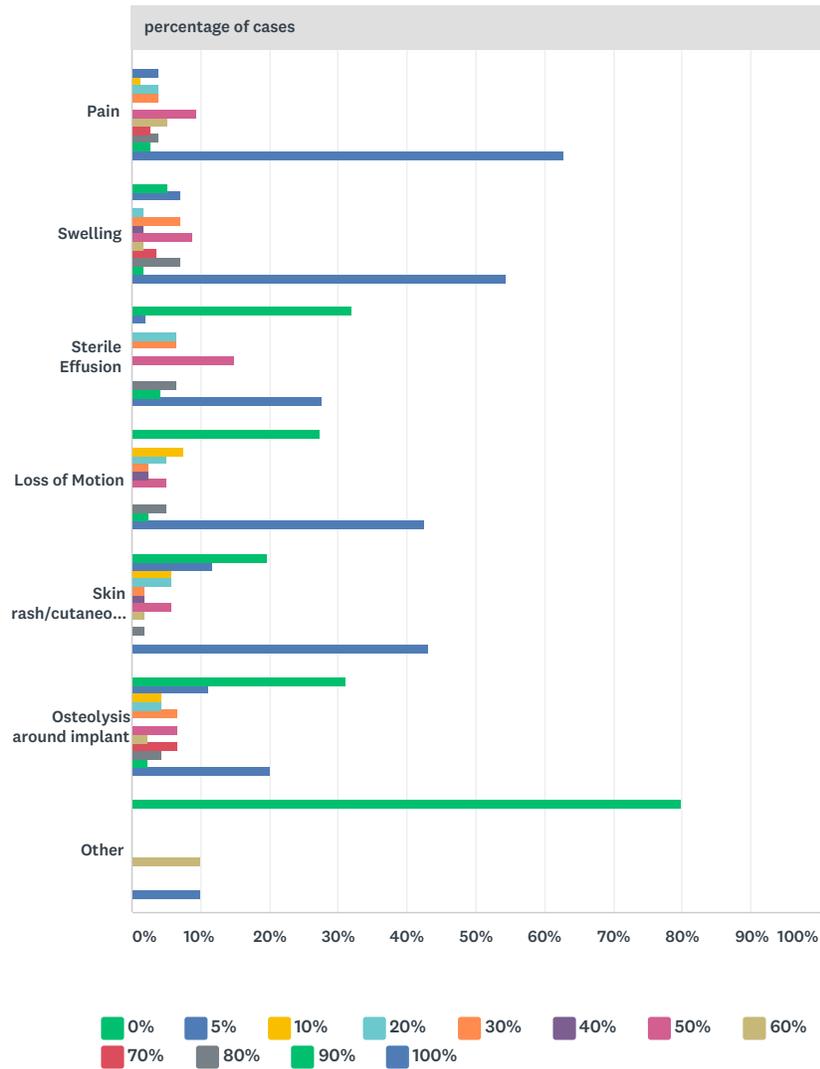
Metal Hypersensitivity Survey

How many allergic reactions to metal implants have you seen in the last 10 year?	44.52%	23.29%	10.96%	5.48%	2.05%	4.11%	1.37%	1.37%	0.68%	0.00%	3.42%	2.74%	146
	65	34	16	8	3	6	2	2	1	0	5	4	

Metal Hypersensitivity Survey

Q19 What were the signs and symptoms? What percentage of cases do you see this symptom?

Answered: 83 Skipped: 147



percentage of cases													
	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	TOTAL
Pain	0.00%	4.00%	1.33%	4.00%	4.00%	0.00%	9.33%	5.33%	2.67%	4.00%	2.67%	62.67%	75
Swelling	5.26%	7.02%	0.00%	1.75%	7.02%	1.75%	8.77%	1.75%	3.51%	7.02%	1.75%	54.39%	57
Sterile Effusion	31.91%	2.13%	0.00%	6.38%	6.38%	0.00%	14.89%	0.00%	0.00%	6.38%	4.26%	27.66%	47
Loss of Motion	27.50%	0.00%	7.50%	5.00%	2.50%	2.50%	5.00%	0.00%	0.00%	5.00%	2.50%	42.50%	40
Skin rash/cutaneous manifestation	19.61%	11.76%	5.88%	5.88%	1.96%	1.96%	5.88%	1.96%	0.00%	1.96%	0.00%	43.14%	51
Osteolysis around implant	31.11%	11.11%	4.44%	4.44%	6.67%	0.00%	6.67%	2.22%	6.67%	4.44%	2.22%	20.00%	45
Other	80.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	10.00%	10

#	OTHER (PLEASE SPECIFY)	DATE
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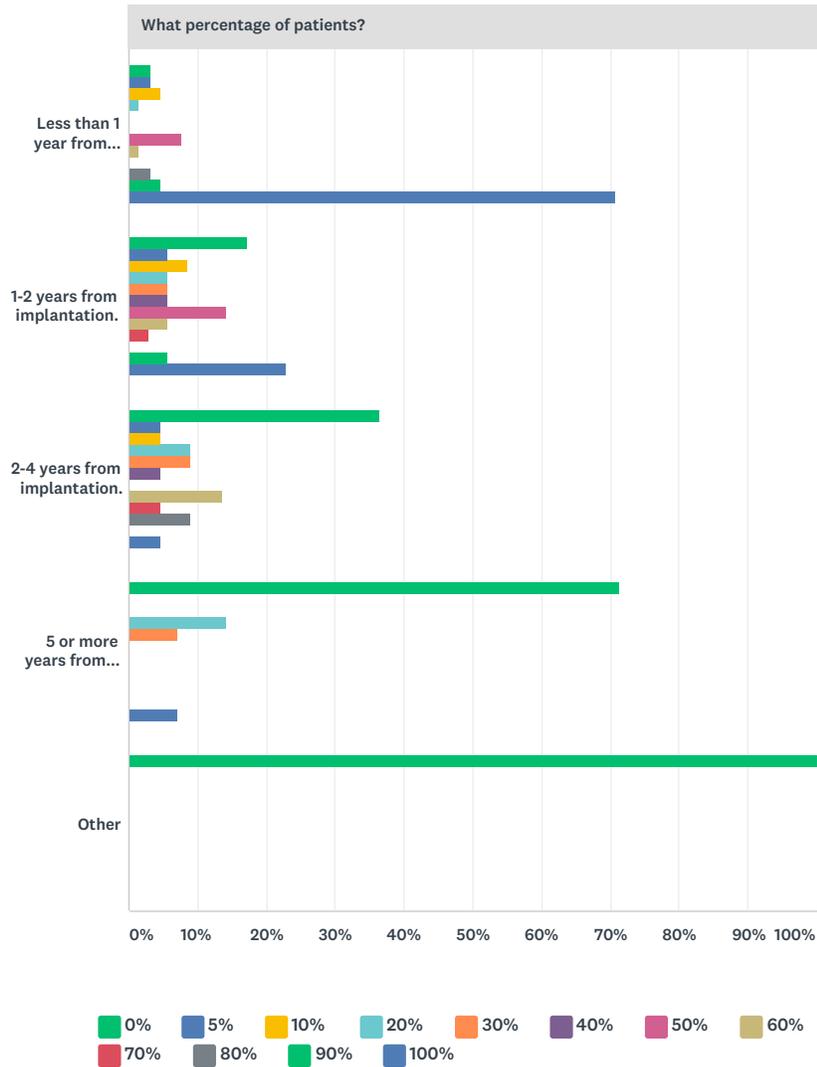
Metal Hypersensitivity Survey

1	Only had 1 case	10/27/2015 9:30 AM
2	actually no reaction as we used nickel free implants	10/26/2015 6:07 PM
3	no symptoms	7/27/2015 11:54 PM
4	Sub q hematoma 4 weeks post op	7/22/2015 10:16 PM
5	Have not seen reactions	7/22/2015 12:54 PM
6	all mine have turned out to be PBA sepsis	7/9/2015 3:38 PM
7	erythema	7/8/2015 12:22 PM
8	Aseptic Drainage	7/2/2015 11:58 AM
9	erythema	6/29/2015 11:46 AM
10	NA	6/29/2015 11:32 AM

Metal Hypersensitivity Survey

Q20 When did the symptoms occur?

Answered: 82 Skipped: 148



What percentage of patients?													
	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	TOTAL
Less than 1 year from implantation.	3.08% 2	3.08% 2	4.62% 3	1.54% 1	0.00% 0	0.00% 0	7.69% 5	1.54% 1	0.00% 0	3.08% 2	4.62% 3	70.77% 46	65
1-2 years from implantation.	17.14% 6	5.71% 2	8.57% 3	5.71% 2	5.71% 2	5.71% 2	14.29% 5	5.71% 2	2.86% 1	0.00% 0	5.71% 2	22.86% 8	35
2-4 years from implantation.	36.36% 8	4.55% 1	4.55% 1	9.09% 2	9.09% 2	4.55% 1	0.00% 0	13.64% 3	4.55% 1	9.09% 2	0.00% 0	4.55% 1	22
5 or more years from implantation.	71.43% 10	0.00% 0	0.00% 0	14.29% 2	7.14% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	7.14% 1	14
Other	100.00% 6	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6

#	OTHER (PLEASE SPECIFY)	DATE
1	One case	10/27/2015 9:30 AM
2	see above	10/26/2015 6:07 PM
3	I don't recall	8/22/2015 1:39 PM

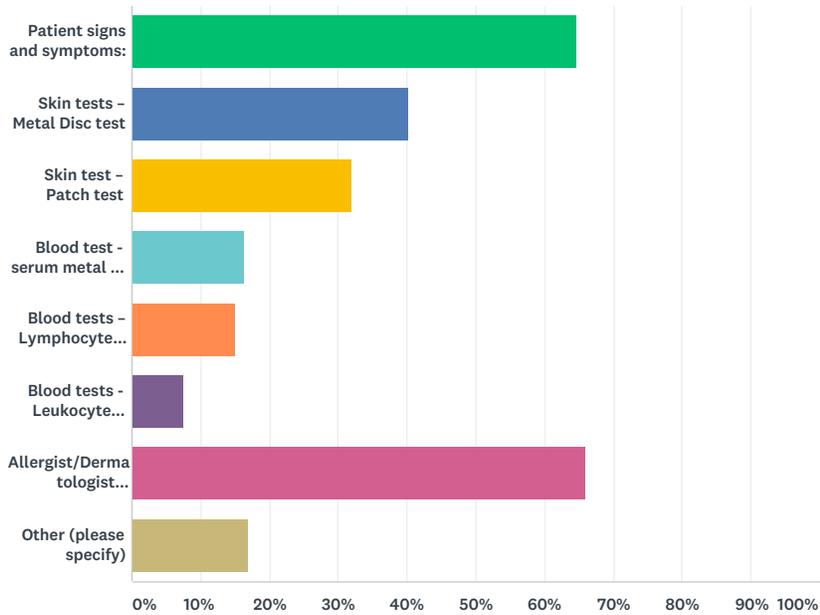
Metal Hypersensitivity Survey

4	The two cases I used a titanium implant patients had known reaction to metal and could not wear costume jewelry used special implant prophylactic ally because the print was concerned	7/22/2015 12:54 PM
5	na	6/29/2015 11:32 AM

Metal Hypersensitivity Survey

Q21 How did you or how would you make the diagnosis of metal hypersensitivity to an orthopaedic implant? Check all that apply

Answered: 147 Skipped: 83



ANSWER CHOICES	RESPONSES	
Patient signs and symptoms:	64.63%	95
Skin tests – Metal Disc test	40.14%	59
Skin test – Patch test	31.97%	47
Blood test - serum metal ion concentrations	16.33%	24
Blood tests – Lymphocyte Transformation Test (LTT)	14.97%	22
Blood tests - Leukocyte Migration Inhibition Test (LMIT)	7.48%	11
Allergist/Dermatologist Consult	65.99%	97
Other (please specify)	17.01%	25
Total Respondents: 147		

#	OTHER (PLEASE SPECIFY)	DATE
1	The patient has reaction to jewelry with nickel; proven allergic reactions so no testing done	10/26/2015 6:07 PM
2	Don't know best test off hand	9/27/2015 7:01 AM
3	Consultation at Rush	7/28/2015 7:47 PM
4	MARS MRI	7/23/2015 6:58 PM
5	History. Also her brother had an allergy to stainless steel ulnar plate that resolved with removal	7/22/2015 10:18 PM
6	biopsy	7/22/2015 5:59 PM
7	I don't know	7/22/2015 2:25 PM
8	pt history of reaction to jewelry in past	7/22/2015 12:58 PM
9	Revision	7/18/2015 11:33 PM
10	Rush in Chicago has a lab that does the testing. I send patient blood samples there now. Skin testing is not accurate.	7/18/2015 1:01 PM
11	History of reaction to cheap jewelry	7/18/2015 11:37 AM
12	dont do surgery	7/18/2015 11:27 AM
13	na	7/17/2015 9:41 PM
14	refer to allergy	7/16/2015 4:52 PM

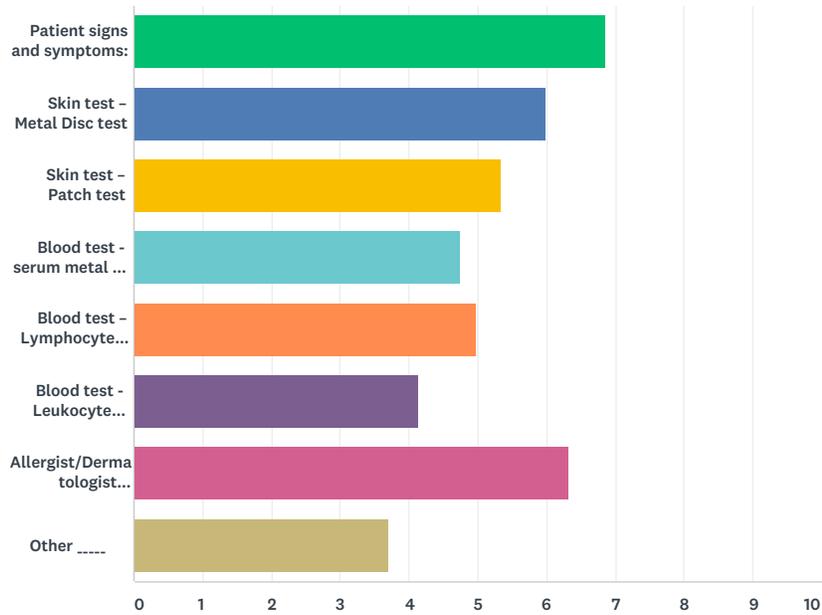
Metal Hypersensitivity Survey

15	test have been unreliable. Some patients with a nickel allergy dx by reaction to ear rings have a total knee in that is not reacting. Some patch and blood tests have come back indeterminate.	7/9/2015 3:41 PM
16	take well-fixed implant out and put in Ti or Zr implant with nosubsequent pain	7/8/2015 12:48 PM
17	History of hypersensitivity/allergy to cheap jewelry	7/8/2015 12:23 PM
18	Referral to dr Mcpherson for dx and surgical treatment	7/8/2015 2:58 AM
19	No allergy found in this metal on metal hip found with osteolysis on x ray.	7/7/2015 8:27 PM
20	deep ache that started after ORIF, resolution of deep ache with metal removal	7/7/2015 7:27 PM
21	never observed this phenomena,	7/7/2015 6:35 PM
22	Referral to Allergist for testing if patient says they have reactions to Jewelry	7/7/2015 12:49 PM
23	never diagnosed	7/3/2015 6:50 PM
24	clinical presentaion of intermittent swelling redness over skin of tibia ruled out infection, removed plates and resolved	7/2/2015 12:47 PM
25	Never seen it	6/29/2015 1:44 PM

Metal Hypersensitivity Survey

Q22 Rank your preferred method of making the diagnosis: From most preferred (1) to least preferred (8).

Answered: 140 Skipped: 90

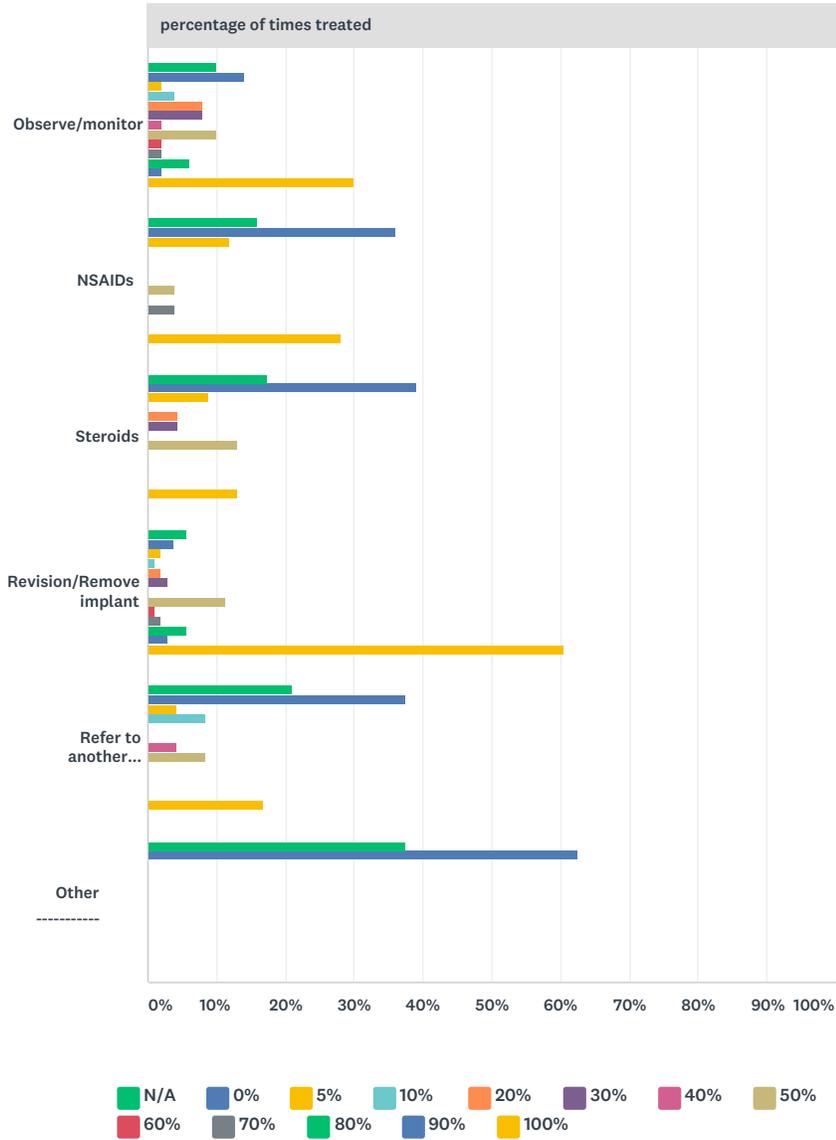


	1	2	3	4	5	6	7	8	N/A	TOTAL	SCORE
Patient signs and symptoms:	46.09% 53	16.52% 19	12.17% 14	9.57% 11	1.74% 2	1.74% 2	0.87% 1	1.74% 2	9.57% 11	115	6.87
Skin test – Metal Disc test	12.87% 13	21.78% 22	15.84% 16	7.92% 8	8.91% 9	5.94% 6	0.00% 0	0.99% 1	25.74% 26	101	5.99
Skin test – Patch test	4.26% 4	17.02% 16	18.09% 17	17.02% 16	6.38% 6	3.19% 3	6.38% 6	2.13% 2	25.53% 24	94	5.33
Blood test - serum metal ion concentrations	6.02% 5	8.43% 7	9.64% 8	10.84% 9	10.84% 9	8.43% 7	6.02% 5	3.61% 3	36.14% 30	83	4.75
Blood test – Lymphocyte Transformation Test (LTT)	10.34% 9	9.20% 8	6.90% 6	8.05% 7	14.94% 13	12.64% 11	5.75% 5	0.00% 0	32.18% 28	87	4.98
Blood test - Leukocyte Migration Inhibition Test (LMIT)	1.20% 1	9.64% 8	9.64% 8	7.23% 6	4.82% 4	16.87% 14	13.25% 11	2.41% 2	34.94% 29	83	4.15
Allergist/Dermatologist Consult	35.77% 44	19.51% 24	11.38% 14	7.32% 9	3.25% 4	1.63% 2	8.94% 11	1.63% 2	10.57% 13	123	6.32
Other _____	7.02% 4	1.75% 1	3.51% 2	0.00% 0	5.26% 3	5.26% 3	5.26% 3	12.28% 7	59.65% 34	57	3.70

Metal Hypersensitivity Survey

Q23 How did you or would you treat the allergic response to the orthopaedic implant?

Answered: 118 Skipped: 112



percentage of times treated														
	N/A	0%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	TOTAL
Observe/monitor	10.00%	14.00%	2.00%	4.00%	8.00%	8.00%	2.00%	10.00%	2.00%	2.00%	6.00%	2.00%	30.00%	118
NSAIDs	16.00%	36.00%	12.00%	0.00%	0.00%	0.00%	0.00%	4.00%	0.00%	4.00%	0.00%	0.00%	28.00%	112
Steroids	17.39%	39.13%	8.70%	0.00%	4.35%	4.35%	0.00%	13.04%	0.00%	0.00%	0.00%	0.00%	13.04%	118
Revision/Remove implant	5.66%	3.77%	1.89%	0.94%	1.89%	2.83%	0.00%	11.32%	0.94%	1.89%	5.66%	2.83%	60.38%	118
Refer to another Orthopaedic Surgeon	20.83%	37.50%	4.17%	8.33%	0.00%	0.00%	4.17%	8.33%	0.00%	0.00%	0.00%	0.00%	16.67%	112
Other	37.50%	62.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	118

#	OTHER (PLEASE SPECIFY)	DATE
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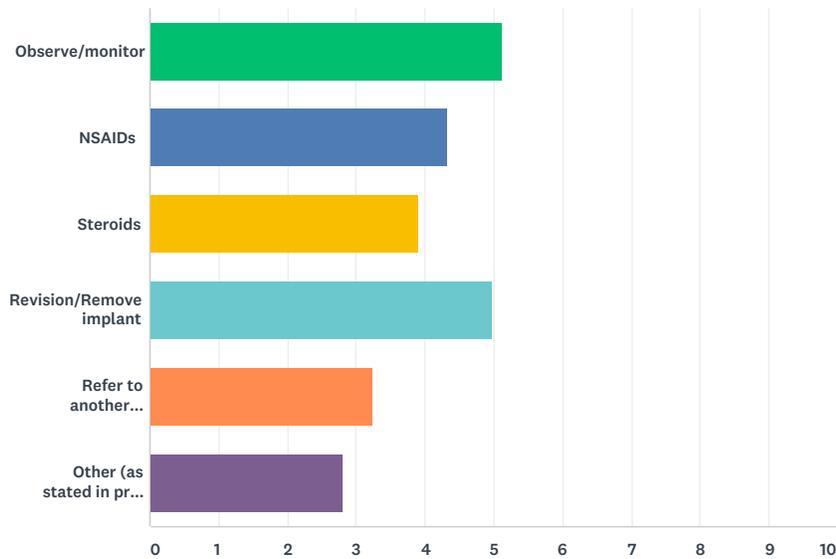
Metal Hypersensitivity Survey

1	N/A	11/10/2015 11:08 AM
2	no reaction as used nickel free implants	10/26/2015 6:07 PM
3	Would vary I suspect - may depend on risks of removing implant - superficial plate vs femoral acl screw	9/27/2015 7:03 AM
4	N/A	7/18/2015 11:27 AM
5	have not done it	7/16/2015 1:35 PM
6	custom implant with low nickle content	7/11/2015 5:44 AM
7	the only one actually removed had the same reaction with a non nickel implant. She had trichotillomania.	7/9/2015 3:43 PM
8	Refer to allergist	7/7/2015 10:49 PM
9	Depends on the degree of difficulty...If quite symptomatic remove the implant	6/29/2015 11:35 AM
10	N/a. Seen on testing. Never seen p implantation	6/29/2015 11:24 AM

Metal Hypersensitivity Survey

Q24 How did you or would you treat the allergic response to the orthopaedic implant? Rank most likely treatment (1) to least likely treatment choice (6)

Answered: 126 Skipped: 104

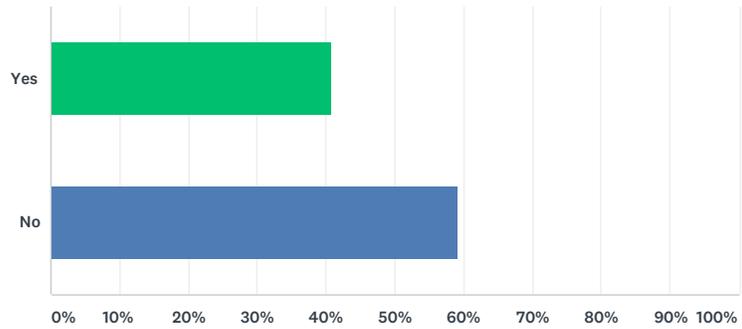


	1	2	3	4	5	6	N/A	TOTAL	SCORE
Observe/monitor	42.71% 41	29.17% 28	7.29% 7	6.25% 6	4.17% 4	0.00% 0	10.42% 10	96	5.12
NSAIDs	9.59% 7	28.77% 21	20.55% 15	10.96% 8	4.11% 3	1.37% 1	24.66% 18	73	4.33
Steroids	4.00% 3	20.00% 15	24.00% 18	16.00% 12	5.33% 4	2.67% 2	28.00% 21	75	3.91
Revision/Remove implant	51.30% 59	14.78% 17	13.04% 15	13.04% 15	2.61% 3	1.74% 2	3.48% 4	115	4.97
Refer to another Orthopaedic Surgeon	8.45% 6	9.86% 7	8.45% 6	11.27% 8	28.17% 20	4.23% 3	29.58% 21	71	3.24
Other (as stated in prior question)	9.26% 5	1.85% 1	5.56% 3	1.85% 1	9.26% 5	18.52% 10	53.70% 29	54	2.80

Metal Hypersensitivity Survey

Q25 Do you routinely ask patients if they are allergic to metals or jewelry?

Answered: 172 Skipped: 58

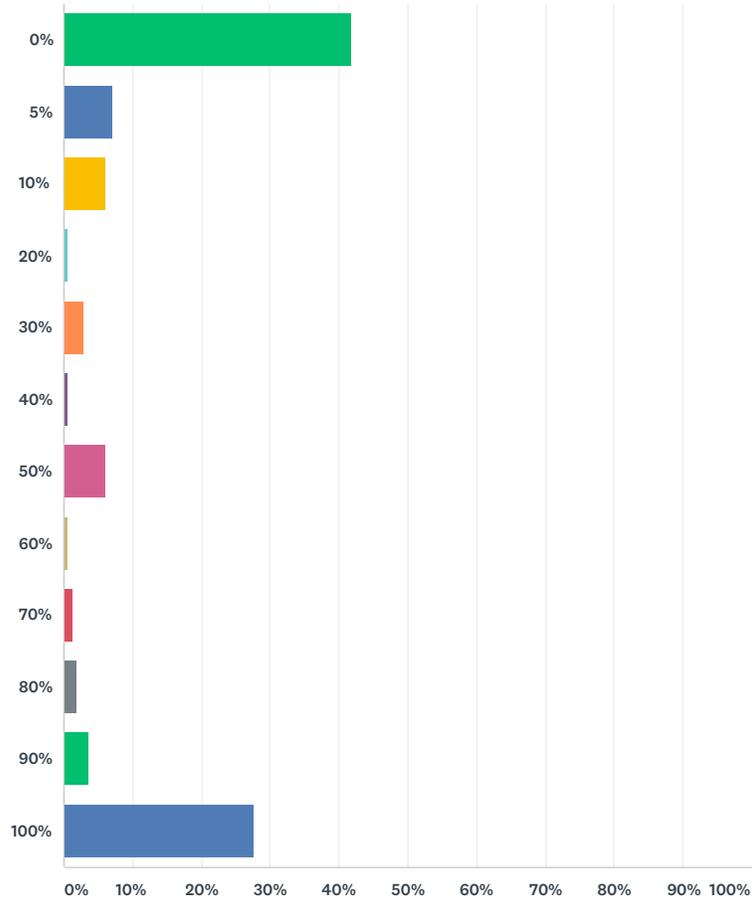


ANSWER CHOICES	RESPONSES	
Yes	40.70%	70
No	59.30%	102
TOTAL		172

Metal Hypersensitivity Survey

Q26 What percentage of arthroplasty patients do you inquire about metal allergy pre-operatively?

Answered: 167 Skipped: 63

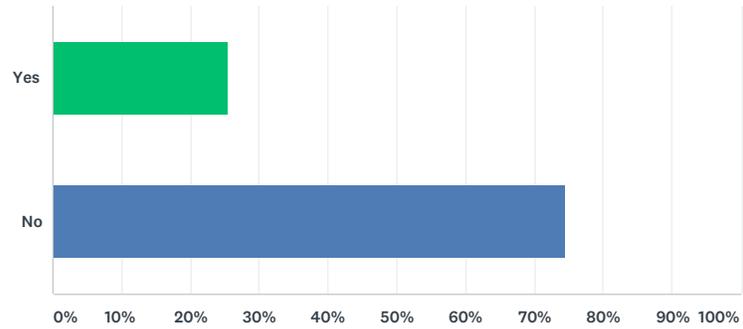


ANSWER CHOICES	RESPONSES	
0%	41.92%	70
5%	7.19%	12
10%	5.99%	10
20%	0.60%	1
30%	2.99%	5
40%	0.60%	1
50%	5.99%	10
60%	0.60%	1
70%	1.20%	2
80%	1.80%	3
90%	3.59%	6
100%	27.54%	46
TOTAL		167

Metal Hypersensitivity Survey

Q27 Is there a specific question in your patient questionnaire form for metal allergy?

Answered: 165 Skipped: 65

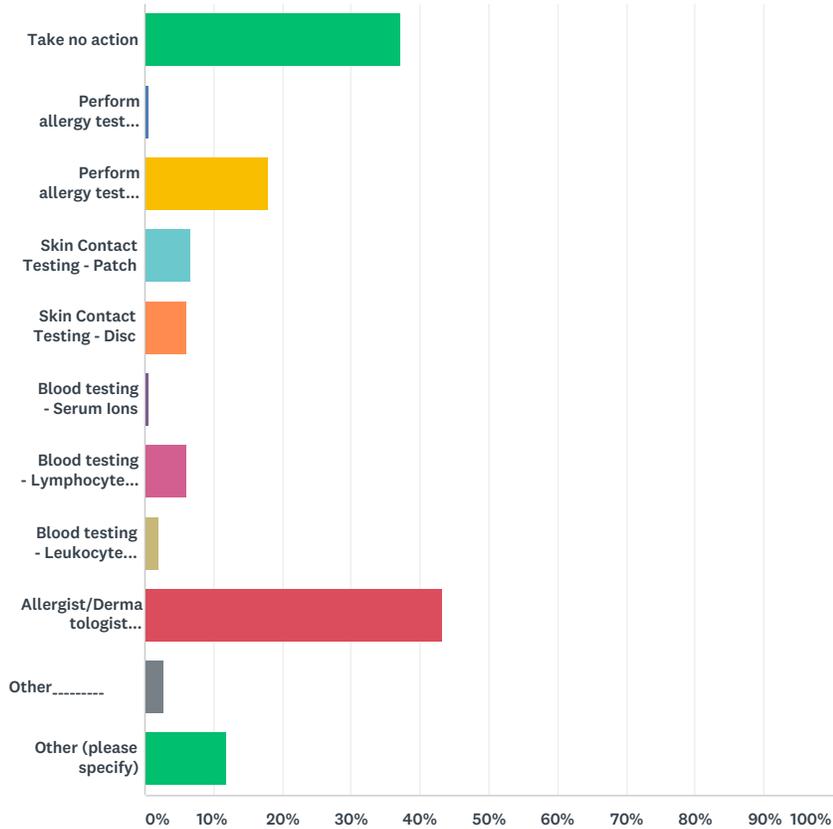


ANSWER CHOICES	RESPONSES	
Yes	25.45%	42
No	74.55%	123
TOTAL		165

Metal Hypersensitivity Survey

Q28 1) What do you do with a mild positive answer to the questionnaire (e.g. mild difficulty to jewelry)? Check all that apply

Answered: 150 Skipped: 80



ANSWER CHOICES	RESPONSES	
Take no action	37.33%	56
Perform allergy testing - In office	0.67%	1
Perform allergy testing - Outside Testing	18.00%	27
Skin Contact Testing - Patch	6.67%	10
Skin Contact Testing - Disc	6.00%	9
Blood testing - Serum Ions	0.67%	1
Blood testing - Lymphocyte Transformation Test (LTT)	6.00%	9
Blood testing - Leukocyte Migration Inhibition Test (LMIT)	2.00%	3
Allergist/Dermatologist consultation?	43.33%	65
Other_____	2.67%	4
Other (please specify)	12.00%	18
Total Respondents: 150		

#	OTHER (PLEASE SPECIFY)	DATE
1	Use low-nickel implants	10/27/2015 2:20 PM
2	plan to use nickel-free implant for arthroplasty surgery	10/26/2015 9:51 PM
3	n/a	10/26/2015 5:33 PM
4	Avoid Cr and Co implants	7/23/2015 7:04 PM
5	use titanium and/or zirconium	7/23/2015 1:13 AM

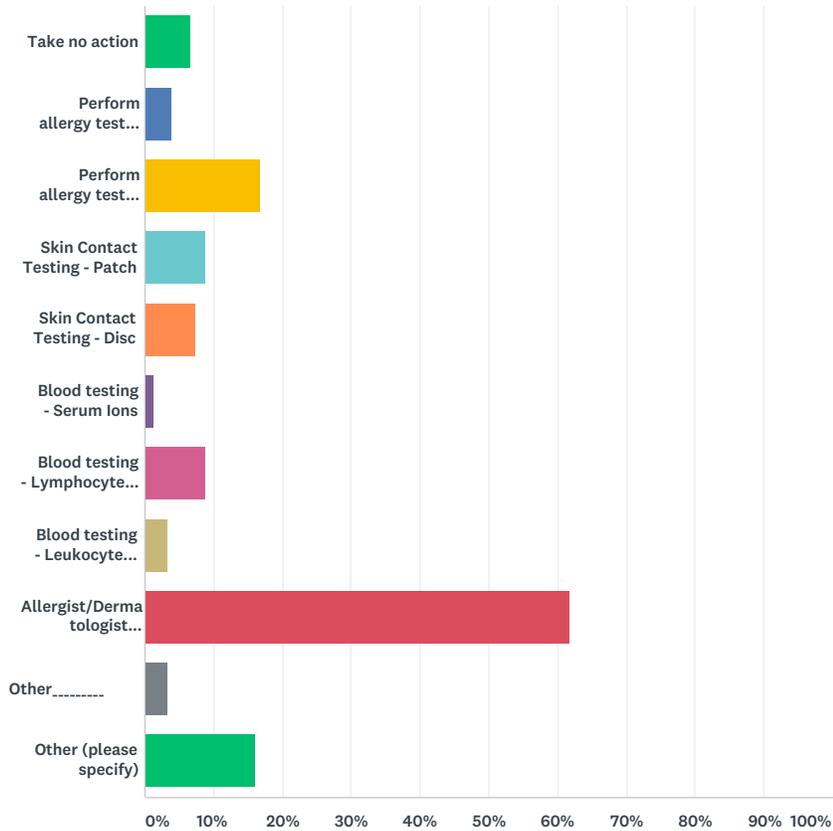
Metal Hypersensitivity Survey

6	NA	7/22/2015 9:27 PM
7	use titanium implants	7/22/2015 6:01 PM
8	Avoid using Ni containing implants	7/22/2015 1:25 PM
9	Counsel patient that metal allergies do not typically occur in alloys used in Orthopaedic surgery	7/20/2015 9:15 AM
10	discuss/inform patient	7/18/2015 7:10 PM
11	N/A	7/18/2015 11:29 AM
12	Haven't needed to do it	7/8/2015 12:17 PM
13	use Ti-6-4	7/7/2015 7:29 PM
14	never observed allergy	7/7/2015 6:39 PM
15	not asked	7/2/2015 6:28 PM
16	Use titanium implants	7/2/2015 12:01 PM
17	consider ceramic	7/2/2015 11:43 AM
18	Discuss with patient	6/30/2015 4:18 PM

Metal Hypersensitivity Survey

Q29 1) What do you do with a markedly positive answer to the questionnaire (e.g. marked reaction to jewelry)? Check all that apply

Answered: 149 Skipped: 81



ANSWER CHOICES	RESPONSES
Take no action	6.71% 10
Perform allergy testing - In office	4.03% 6
Perform allergy testing - Outside Testing	16.78% 25
Skin Contact Testing - Patch	8.72% 13
Skin Contact Testing - Disc	7.38% 11
Blood testing - Serum Ions	1.34% 2
Blood testing - Lymphocyte Transformation Test (LTT)	8.72% 13
Blood testing - Leukocyte Migration Inhibition Test (LMIT)	3.36% 5
Allergist/Dermatologist consultation?	61.74% 92
Other_____	3.36% 5
Other (please specify)	16.11% 24
Total Respondents: 149	

#	OTHER (PLEASE SPECIFY)	DATE
1	Alter implant choice	11/6/2015 4:10 PM
2	same as above - use nickel-free implant when doing surgery	10/26/2015 9:51 PM
3	use titanium	10/26/2015 7:29 PM
4	did not use implants with the metal in question	10/26/2015 6:08 PM
5	n/a	10/26/2015 5:33 PM

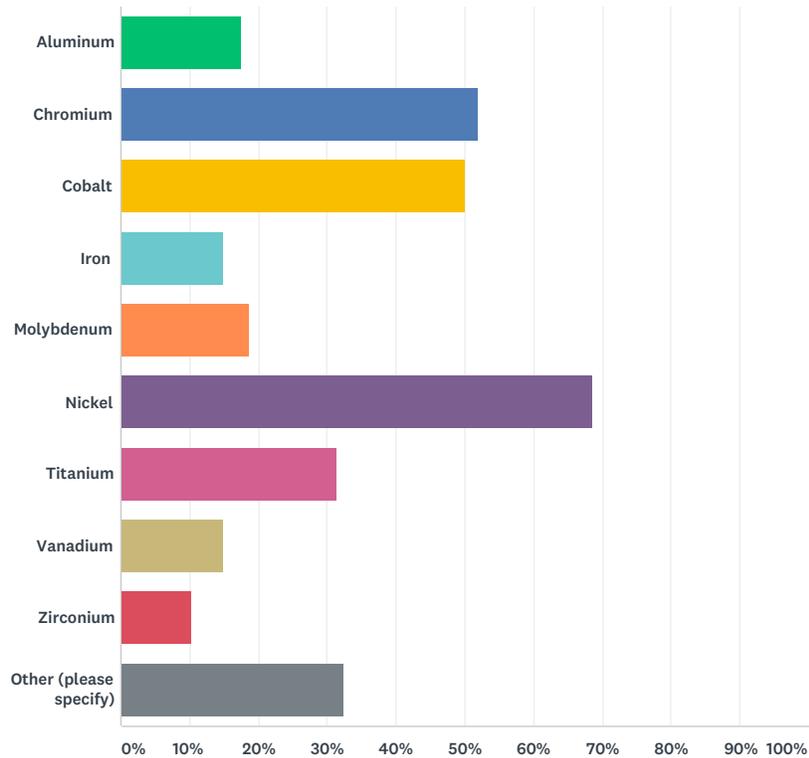
Metal Hypersensitivity Survey

6	avoid Co Cr and Ni implants	7/28/2015 7:49 PM
7	Avoid Cr and Co implants	7/23/2015 7:04 PM
8	see above	7/23/2015 1:13 AM
9	NA	7/22/2015 9:27 PM
10	alternative metals	7/22/2015 6:01 PM
11	USE A DIFFERENT IMPLANT	7/21/2015 9:49 PM
12	determine alloy and try to find implant with a different composition	7/20/2015 4:04 PM
13	Change implant	7/18/2015 11:35 PM
14	refer to outside ortho	7/18/2015 7:10 PM
15	N/A	7/18/2015 11:29 AM
16	avoid metal implant	7/8/2015 11:37 PM
17	Haven't needed to do it	7/8/2015 12:17 PM
18	use Ti-6-4	7/7/2015 7:29 PM
19	do not use an implant because of litigation, not because I think they might have an allergy to an implant	7/7/2015 6:39 PM
20	not asked	7/2/2015 6:28 PM
21	use pure titanium implat	7/2/2015 12:48 PM
22	Use titanium implants	7/2/2015 12:01 PM
23	use ceramic	7/2/2015 11:43 AM
24	custom implant	6/30/2015 11:30 PM

Metal Hypersensitivity Survey

Q30 1) What metals do you test for? Check all that apply.

Answered: 108 Skipped: 122



ANSWER CHOICES	RESPONSES
Aluminum	17.59% 19
Chromium	51.85% 56
Cobalt	50.00% 54
Iron	14.81% 16
Molybdenum	18.52% 20
Nickel	68.52% 74
Titanium	31.48% 34
Vanadium	14.81% 16
Zirconium	10.19% 11
Other (please specify)	32.41% 35
Total Respondents: 108	

#	OTHER (PLEASE SPECIFY)	DATE
1	probably will let allergist test for all of them	11/10/2015 11:09 AM
2	I consult allergist	11/4/2015 8:26 PM
3	n/a	10/26/2015 6:08 PM
4	and whatever my dermatologist wants to check	9/27/2015 7:04 AM
5	NA	7/28/2015 11:52 PM
6	stainless stell	7/24/2015 3:32 PM
7	NA	7/22/2015 9:28 PM
8	i dont personally test.	7/22/2015 6:01 PM
9	I don't test I send to the allergist	7/22/2015 12:59 PM

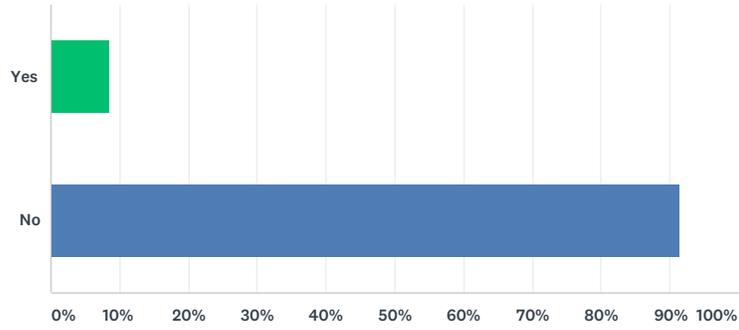
Metal Hypersensitivity Survey

10	Palladium	7/22/2015 10:13 AM
11	up to allergist	7/20/2015 8:03 PM
12	Consultant choice	7/20/2015 4:11 PM
13	send to allergists for this	7/20/2015 4:04 PM
14	None	7/19/2015 3:32 PM
15	None	7/18/2015 11:36 PM
16	none	7/18/2015 7:10 PM
17	none currently	7/18/2015 9:18 AM
18	never done it	7/17/2015 9:42 PM
19	allergist does it	7/16/2015 1:36 PM
20	all	7/12/2015 5:56 AM
21	None	7/8/2015 11:21 PM
22	None	7/8/2015 5:24 PM
23	N/a	7/8/2015 12:17 PM
24	None	7/7/2015 10:52 PM
25	I am not operating, would appreciate a copy of this study. KCPJRMD@hotmail.com	7/7/2015 8:29 PM
26	none	7/7/2015 6:39 PM
27	Any history of sensitivity	7/5/2015 7:15 AM
28	poethylene	7/3/2015 2:39 AM
29	do not test asd so rare	7/2/2015 12:49 PM
30	palladium	6/30/2015 11:31 PM
31	outside testing do this	6/30/2015 5:12 PM
32	Leave it up to the allergist	6/30/2015 2:44 PM
33	leave to allergist consultation	6/30/2015 5:57 AM
34	I let the dermatologist/allergist dictate	6/29/2015 11:49 AM
35	what ever the complaint is and probably the implant material	6/29/2015 11:36 AM

Metal Hypersensitivity Survey

Q31 Do you test for cement component allergy?

Answered: 140 Skipped: 90

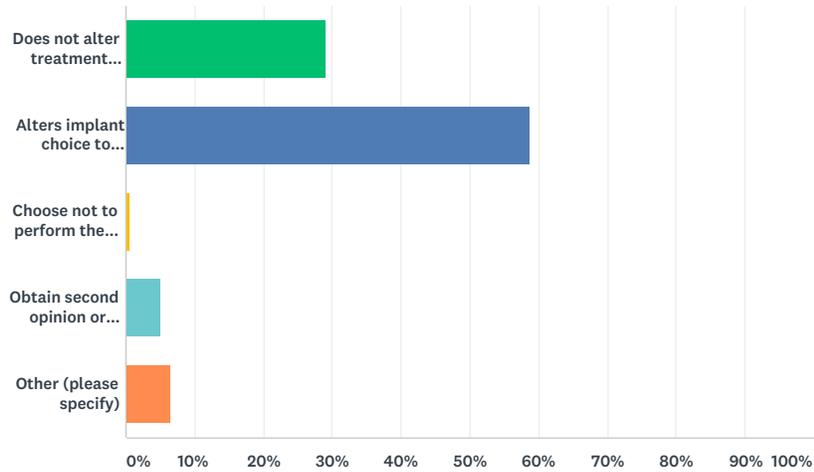


ANSWER CHOICES	RESPONSES	
Yes	8.57%	12
No	91.43%	128
TOTAL		140

Metal Hypersensitivity Survey

Q32 How do the results of testing influence your treatment? Mild reaction

Answered: 138 Skipped: 92



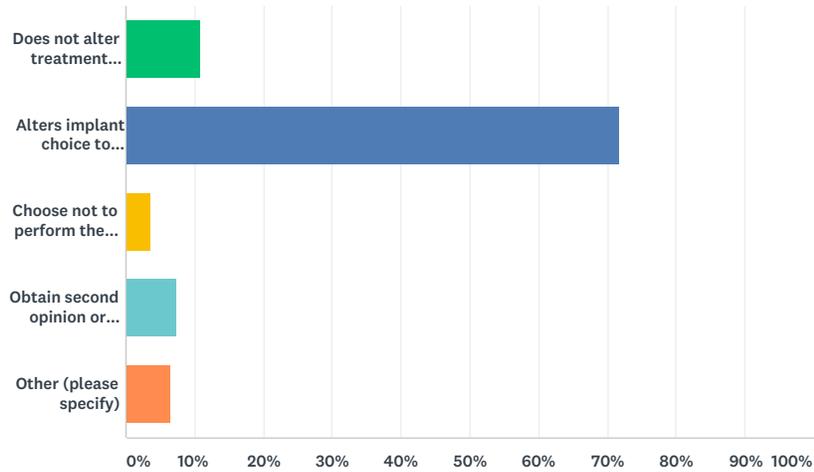
ANSWER CHOICES	RESPONSES
Does not alter treatment choice.	28.99% 40
Alters implant choice to non-reacting metal component.	58.70% 81
Choose not to perform the arthroplasty/procedure	0.72% 1
Obtain second opinion or refer to another physician	5.07% 7
Other (please specify)	6.52% 9
TOTAL	138

#	OTHER (PLEASE SPECIFY)	DATE
1	would have patient tested	10/26/2015 6:12 PM
2	patient education	7/28/2015 7:50 PM
3	na	7/22/2015 9:28 PM
4	consult with allergist, may have patient "wear" a trial implant	7/16/2015 4:44 PM
5	No testing	7/8/2015 11:22 PM
6	N-a	7/8/2015 12:17 PM
7	don't test	7/7/2015 6:41 PM
8	Follow allergist recommendations	6/30/2015 4:19 PM
9	adjust as the results indicate	6/29/2015 11:37 AM

Metal Hypersensitivity Survey

Q33 How do the results of testing influence your treatment? Moderate reaction

Answered: 138 Skipped: 92



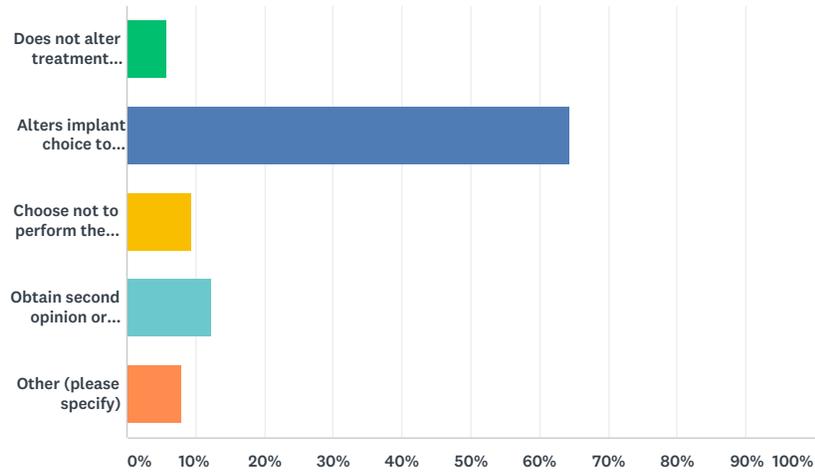
ANSWER CHOICES	RESPONSES
Does not alter treatment choice.	10.87% 15
Alters implant choice to non-reacting metal component.	71.74% 99
Choose not to perform the arthroplasty/procedure	3.62% 5
Obtain second opinion or refer to another physician	7.25% 10
Other (please specify)	6.52% 9
TOTAL	138

#	OTHER (PLEASE SPECIFY)	DATE
1	I don't test	10/26/2015 7:22 PM
2	Would have patient tested; if pos choose different implant	10/26/2015 6:12 PM
3	NA	7/28/2015 11:52 PM
4	na	7/22/2015 9:28 PM
5	No testing	7/8/2015 11:22 PM
6	N-a	7/8/2015 12:17 PM
7	don't test, so I do not have an opinion	7/7/2015 6:41 PM
8	Follow allergist recommendations	6/30/2015 4:19 PM
9	same	6/29/2015 11:37 AM

Metal Hypersensitivity Survey

Q34 How do the results of testing influence your treatment? Severe reaction

Answered: 138 Skipped: 92



ANSWER CHOICES	RESPONSES
Does not alter treatment choice.	5.80% 8
Alters implant choice to non-reacting metal component.	64.49% 89
Choose not to perform the arthroplasty/procedure	9.42% 13
Obtain second opinion or refer to another physician	12.32% 17
Other (please specify)	7.97% 11
TOTAL	138

#	OTHER (PLEASE SPECIFY)	DATE
1	Don't test	10/26/2015 7:22 PM
2	NA	7/28/2015 11:52 PM
3	na	7/22/2015 9:28 PM
4	depends on the results of testing and prosthesis options available	7/22/2015 1:26 PM
5	No testing	7/8/2015 11:22 PM
6	N/a	7/8/2015 12:17 PM
7	don not have an opinion	7/7/2015 6:41 PM
8	avoid metal	7/2/2015 12:49 PM
9	Follow allergist recommendations	6/30/2015 4:19 PM
10	perform further testing	6/29/2015 2:24 PM
11	same	6/29/2015 11:37 AM

Metal Hypersensitivity Survey

Q35 Please provide any additional information on how you manage metal hypersensitivity.

Answered: 16 Skipped: 214

#	RESPONSES	DATE
1	I already use the low-allergen components (zirconium, titanium, carbon fiber)	10/27/2015 2:22 PM
2	I have had one patient with metal hypersensitivity. It was recognized on history alone. I obtained metal sensitivity testing and noted that she had a nickel allergy along with a couple other metals. I use the titanium Tornier Glensphere for her reverse total shoulder for fracture nonunion and a fracture stem.	10/26/2015 6:43 PM
3	There was a brief interest in metal implant allergies after an article in the Washington Post newspaper about a case in Washington DC where a patient had an allergy. Dr Williams at Rothman was quoted as having seen a few cases, but he has publicly commented that the only major symptom was pain, and in the final analysis he could not tell if they might have been infected. Reliably making the diagnosis of metal sensitivity causing symptoms can only adequately be made if infection is ruled out and appropriate skin testing confirms the allergy. My opinion only	10/26/2015 6:12 PM
4	1. Some of your questions seem to confuse metal toxicity (ie high metal ions and adverse soft tissue reaction) with metal hypersensitivity 2. Must also rule out occult sepsis in a painful swollen Arthroplasty.	7/23/2015 7:15 PM
5	should be distinguished from metal debris ion release which is more common in Hip arthroplasty but can be seen in the shoulder	7/20/2015 4:06 PM
6	Metal hypersensitivity is extremely rare. I saw one case in residency and I have personally had one patient allergic to bone cement.	7/20/2015 3:07 PM
7	Dont	7/19/2015 3:32 PM
8	Have never diagnosed one, but may have had a patient or two with undiagnosed	7/17/2015 9:43 PM
9	This is an evolving topic. I try to elicit the information preop, and do a skin test, or blood test. If there is a clear, easy alternative, I'll typically use that. If not, I may get allergist opinion, or have a patient wear an explanted implant to see if there is any topical issue	7/16/2015 4:44 PM
10	25 years of busy practice placing lots of metal and never seen a single patient who I even thought might be having a metal allergy.	7/16/2015 1:59 PM
11	Currently, I have asked if a patient is allergic to Nickel, or if they had a reaction to early pierced earring posts (cheap ones obtained early are presumed to be nickel). Otherwise if they have had a reaction with a total knee that involved a rash, redness or effusion, and it is dx as a nickel allergy, I will modify the cobalt chrome to a nitrogen hardened titanium implant. The one case dx by a dermatologists had the implant revised to a hardened titanium implant, and had the same wound breakdown from patient scratching the wound (trichotillomania). When confronted, she declined to return for follow-up visits and transferred her care to Jensen.	7/9/2015 3:51 PM
12	Reasonably well crafted questionnaire, that is hard to do. Two cases, one tibial rod and one ORIF ankle, done elsewhere. Both patients could not wear cheap silver colored jewelry. Ache started right after ORIF, resolved with removal.	7/7/2015 7:31 PM
13	Do not have evidence that it exist. I think it is probably an occult infection	7/7/2015 6:41 PM
14	Was in the Washington Post newspaper about cases in Philly and had patients asking about it for months. Not a single patient ever had real allergic reactions to metal but were worried. I think this problem causes more concern than the incidence deserves.	6/30/2015 12:39 PM
15	Screening questions are used when surgery scheduled. ...if there is a patient statement of concern then opinion to dermatopathologist	6/29/2015 7:23 PM
16	To clarify One positive test preop. No cases seen post implant	6/29/2015 11:26 AM