2002 JCO Study of Orthodontic Diagnosis and Treatment Procedures
Part 2 Breakdowns of Selected Variables

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The methodology and basic results of the 2002 JCO Study of Orthodontic Diagnosis and Treatment Procedures were covered in last month's article, along with trends across the four surveys conducted since 1986. The final two parts in this series will break down the usage of the most interesting diagnostic and treatment methods among three different groups of respondents—by number of years in practice, geographic region, and gross income level.

Patient Demographics

There was no noticeable difference in patient age by number of years in practice (Table 20). The newest practices reported the highest percentage of adult cases, and the oldest practices the highest percentage of extraction cases.

The mean age recommended to start treatment varied from a low of 9.3 years in the Pacific region to a high of 11.7 years in the Mountain region (Table 21). The highest percentage of adult patients was in the Pacific region, and the lowest in New England. Percentages of two-phase patients ranged from 19.4% in the West South Central region to 26.0% in the Middle Atlantic. West North Central practices reported the highest mean percentage of extraction cases, and Middle Atlantic practices the lowest. The most TMJ and surgical-orthodontic patients were treated in the West South Central region, while New England orthodontists treated the fewest.

Respondents with the highest gross income reported both the youngest and the oldest patients (Table 22). Respondents with the lowest gross income showed the highest percentages of adult and extraction cases and the lowest percentages of two-phase cases. The largest practices treated the most TMJ and surgical-orthodontic patients.

Diagnostic Records

In general, the newest practices appeared to perform more different routine cephalometric analyses than older practices did (Table 23). The oldest practices were the least likely to use computerized tracings and imaging.

Regional differences could be seen in the use of many specific cephalometric analyses (Table 24). Of those used routinely by more than 10% of the respondents in any region, the Burstone and Steiner analyses were most popular in New England; the Downs and McNamara analy-

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TABLE 20
PATIENT DISTRIBUTION (MEANS) BY YEARS IN PRACTICE

	1-5	6-10	11-15	16-20	21-25	26+
Age of youngest current patient	6.6	6.2	6.9	6.2	6.5	6.6
Age of oldest current patient	62.7	62.6	63.5	62.2	63.4	63.3
Age recommended to begin treatment	10.1	10.4	10.3	10.1	9.9	9.6
Adult active cases	24.0%	21.3%	21.1%	23.3%	21.9%	22.7%
Two-phase treatment cases	23.9	21.1	25.5	23.8	24.5	22.1
Extraction cases	19.9%	21.8%	19.2%	21.6%	24.1%	25.2%
TMJ cases*	11.7	8.6	8.0	18.8	14.6	12.8
Surgical-orthodontic cases*	6.0	6.2	8.6	7.2	8.2	7.0

*Mean numbers of 2001 patients for respondents who treated any patients in these categories.

TABLE 21
PATIENT DISTRIBUTION (MEANS) BY GEOGRAPHIC REGION

	NE	MA	SA	ESC	ENC	WNC	MTN	WSC	PAC
Age of youngest current patient	6.3	7.0	6.4	6.3	6.4	6.1	6.4	6.6	6.8
Age of oldest current patient	61.7	63.3	64.1	60.0	62.8	62.7	61.7	62.0	64.2
Age recommended to begin treatment	9.6	9.8	9.9	10.3	10.2	10.0	11.7	10.2	9.3
Adult active cases	17.7%	20.5%	23.2%	20.3%	20.2%	18.0%	23.0%	23.7%	25.4%
Two-phase treatment cases	25.1%	26.0%	22.8%	23.9%	23.5%	24.2%	19.8%	19.4%	24.8%
Extraction cases	22.0%	20.1%	23.9%	23.0%	21.8%	24.7%	21.9%	23.0%	22.2%
TMJ cases*	4.3	9.3	11.2	10.6	12.1	13.1	9.1	17.5	13.6
Surgical-orthodontic cases*	5.1	6.5	5.9	7.3	8.0	5.9	5.1	9.3	7.9

*Mean numbers of 2001 patients for respondents who treated any patients in these categories.

TABLE 22
PATIENT DISTRIBUTION (MEANS) BY GROSS INCOME LEVEL

	Less than $200,000	$201,000-400,000	$401,000-600,000	$601,000-850,000	$851,000-1,100,000	More than $1,100,000
Age of youngest current patient	9.2	6.8	6.5	6.4	6.2	6.2
Age of oldest current patient	52.5	57.7	61.9	62.4	64.6	67.2
Age recommended to begin treatment	10.3	9.8	10.4	10.1	9.8	9.9
Adult active cases	26.8%	23.2%	22.7%	20.3%	21.9%	22.3%
Two-phase treatment cases	20.1%	20.9%	24.3%	22.7%	21.0%	25.1%
Extraction cases	25.9%	23.2%	24.1%	21.7%	22.6%	20.7%
TMJ cases*	4.8	10.5	10.6	9.2	17.0	15.0
Surgical-orthodontic cases*	5.0	3.3	6.0	5.4	8.5	10.0

*Mean numbers of 2001 patients for respondents who treated any patients in these categories.

ses in the East North Central region; the Jarabak analysis in the Pacific region; the Ricketts analysis in the West South Central region; the Tweed analysis in the East South Central region; and the Wits analysis in the West North Central region. Computerized tracings were performed most routinely by Mountain orthodontists, and computer imaging was used most by East South Central orthodontists.

Practices with the highest gross income were the most likely to use their own analyses, computerized tracings, and computer imaging (Table 25). Practices with the lowest gross income performed the most routine post-treatment analyses, but the least routine progress

KEY TO GEOGRAPHIC REGIONS

NE = New England (CT, ME, MA, NH, RI, VT)
MA = Middle Atlantic (NJ, NY, PA)
SA = South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)
ESC = East South Central (AL, KY, MS, TN)
ENC = East North Central (IL, IN, MI, OH, WI)
WNC = West North Central (IA, KS, MN, MO, NE, ND, SD)
MTN = Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)
WSC = West South Central (AR, LA, OK, TX)
PAC = Pacific (AK, CA, HI, OR, WA)

TABLE 23
ROUTINE USE OF CEPHALOMETRIC ANALYSES BY YEARS IN PRACTICE

	1-5	6-10	11-15	16-20	21-25	26+
Pretreatment	81.3%	86.9%	84.8%	82.4%	77.2%	80.3%
Progress	11.0	14.0	14.5	17.6	10.9	18.8
Post-treatment	29.7	35.5	37.7	31.9	34.8	31.4
Alabama	1.1	0.0	0.0	1.1	0.0	0.4
Burstone	2.2	3.7	1.4	2.2	3.3	0.4
Downs	18.7	15.9	17.4	11.0	15.2	16.8
Holdaway	9.9	7.5	8.7	4.4	8.7	11.3
Jarabak	5.5	5.6	10.9	13.2	6.5	6.3
McNamara	16.5	16.8	15.9	11.0	13.0	8.8
Northwestern	0.0	1.9	2.2	1.1	2.2	4.2
Ricketts	23.1	19.6	26.1	28.6	23.9	23.0
Sassouni	8.8	4.7	5.1	0.0	2.2	2.1
Steiner	45.1	41.1	41.3	39.6	19.6	29.7
Tweed	30.8	15.9	21.0	11.0	14.1	20.9
Vari-Simplex	0.0	1.9	2.2	0.0	3.3	1.3
Viazis	0.0	0.0	0.0	0.0	0.0	0.8
Wits	28.6	19.6	22.5	20.9	12.0	10.0
"Eyeball"	25.3	17.8	18.8	12.1	16.3	17.6
Own analysis	29.7	19.6	22.5	19.8	14.1	17.2
Manual tracing	45.1	47.7	42.8	51.6	43.5	51.5
Computerized tracing	25.3	32.7	29.7	34.1	31.5	25.9
Computer imaging and analysis	17.6	20.6	18.8	22.0	17.4	16.3
Templates	2.2	0.0	0.7	5.5	3.3	2.9
VTO	2.2	5.6	3.6	11.0	7.6	7.9

analyses, and were the greatest users of the Tweed and Wits methods.

Fixed Appliances

Respondents who had been in practice the longest were the most likely to use Bioprogressive, lingual, and standard edgewise appliances (Table 26). Among the preadjusted appliance prescriptions, MBT and Orthos were more popular among the newer practices, and the Roth prescription among those who had been in practice for six to 15 years.

The only practices routinely using Begg appliances were in the Middle Atlantic region; the only routine users of the MEAW system were in the South Atlantic states (Table 27). Bidimensional appliances were most popular in New England; Bioprogressive and MBT in the Mountain region; lingual and standard edgewise in the East South Central region; Andrews in the West North Central region; Hilgers, Vari-Simplex, and self-ligating in the West South Central region; Orthos in the Pacific region; and Roth and Tip-Edge in the Middle Atlantic region.

Generally speaking, respondents with lower gross income were more likely than others to use bidimensional, Roth-prescription, and standard edgewise appliances (Table 28). Larger practices were more likely to use lingual appliances, Hilgers and Orthos prescriptions, and self-ligating systems.

TABLE 24
ROUTINE USE OF CEPHALOMETRIC ANALYSES BY GEOGRAPHIC REGION

	NE	MA	SA	ESC	ENC	WNC	MTN	WSC	PAC
Pretreatment	86.7%	77.6%	83.5%	70.3%	85.5%	81.3%	75.0%	85.7%	82.9%
Progress	6.7	11.8	7.1	18.9	16.9	9.4	17.9	25.0	17.1
Post-treatment	3.3	22.4	36.2	27.0	25.8	34.4	32.1	39.3	45.2
Alabama	3.3	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Burstone	10.0	2.4	2.4	0.0	0.8	0.0	1.8	0.0	2.1
Downs	6.7	20.0	11.1	13.5	25.0	15.6	16.1	10.7	14.4
Holdaway	10.0	7.1	6.3	2.7	8.9	9.4	12.5	14.3	7.5
Jarabak	3.3	5.9	7.1	8.1	8.9	3.1	1.8	10.7	11.6
McNamara	10.0	11.8	13.4	10.8	19.4	15.6	12.5	8.3	9.6
Northwestern	0.0	1.2	0.0	2.7	4.8	0.0	0.0	1.2	4.1
Ricketts	16.7	11.8	21.3	18.9	18.5	25.0	30.4	38.1	28.1
Sassouni	3.3	8.2	3.9	2.7	1.6	0.0	1.8	1.2	5.5
Steiner	53.3	38.8	29.1	35.1	30.6	43.8	33.9	29.8	37.0
Tweed	13.3	18.8	16.5	37.8	19.4	15.6	14.3	20.2	19.9
Vari-Simplex	0.0	0.0	1.6	0.0	1.6	3.1	3.6	4.8	0.0
Viazis	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.7
Wits	16.7	14.1	14.2	16.2	22.6	25.0	16.1	14.3	15.8
"Eyeball"	16.7	24.7	17.3	21.6	16.1	9.4	14.3	14.3	19.2
Own analysis	10.0	18.8	25.2	13.5	22.6	25.0	25.0	17.9	17.1
Manual tracing	46.7	48.2	47.2	35.1	41.1	59.4	37.5	52.4	53.4
Computerized tracing	26.7	15.3	27.6	35.1	33.1	31.3	41.1	29.8	28.1
Computer imaging and analysis	13.3	9.4	11.8	37.8	20.2	25.0	19.6	20.2	19.2
Templates	0.0	3.5	3.1	2.7	1.6	0.0	3.6	3.6	1.4
VTO	0.0	1.2	4.7	5.4	1.6	3.1	12.5	13.1	11.0

TABLE 25
ROUTINE USE OF CEPHALOMETRIC ANALYSES BY GROSS INCOME LEVEL

	Less than $200,000	$201,000-400,000	$401,000-600,000	$601,000-850,000	$851,000-1,100,000	More than $1,100,000
Pretreatment	85.7%	80.7%	81.6%	88.8%	79.1%	79.3%
Progress	4.8	15.7	12.8	15.8	17.3	16.9
Post-treatment	40.5	38.6	37.6	28.3	34.5	28.6
Alabama	0.0	0.0	0.0	0.7	1.4	0.0
Burstone	2.4	0.0	3.2	2.6	2.2	0.9
Downs	19.0	14.5	16.8	19.7	18.0	12.7
Holdaway	9.5	12.0	7.2	11.8	10.1	5.6
Jarabak	0.0	6.0	12.0	5.9	10.8	7.5
McNamara	11.9	7.2	10.4	19.1	12.2	13.1
Northwestern	0.0	0.0	2.4	3.9	2.2	1.9
Ricketts	23.8	21.7	28.8	25.7	20.1	23.5
Sassouni	4.8	4.8	2.4	2.0	4.3	4.7
Steiner	40.5	31.3	36.8	40.8	35.3	31.0
Tweed	26.2	22.9	20.0	21.1	20.9	13.6
Vari-Simplex	0.0	1.2	1.6	2.6	2.2	0.0
Viazis	0.0	1.2	0.8	0.0	0.0	0.0
Wits	26.2	13.3	16.8	18.4	25.2	12.7
"Eyeball"	11.9	22.9	19.2	14.5	17.3	20.2
Own analysis	21.4	18.1	19.2	19.7	16.5	23.9
Manual tracing	64.3	60.2	57.6	55.3	42.4	31.5
Computerized tracing	9.5	16.9	24.0	31.6	28.8	38.0
Computer imaging and analysis	4.8	12.0	15.2	15.8	20.1	26.3
Templates	0.0	2.4	1.6	3.9	1.4	2.8
VTO	4.8	6.0	7.2	5.9	6.5	7.0

TABLE 26
ROUTINE USE OF FIXED APPLIANCES BY YEARS IN PRACTICE

	1-5	6-10	11-15	16-20	21-25	26+
Begg	0.0%	0.0%	0.0%	1.1%	0.0%	0.8%
Bidimensional	3.3	7.5	5.8	4.4	1.1	2.5
Bioprogressive	2.2	2.8	2.2	7.7	4.3	11.1
Lingual	0.0	0.9	0.7	0.0	0.0	1.2
MEAW	0.0	0.0	0.0	0.0	0.0	0.4
Preadjusted prescription						
Andrews	7.7	3.8	5.1	12.1	7.6	8.2
Hilgers	1.1	0.9	2.9	0.0	3.3	2.5
MBT	17.6	12.3	10.1	1.1	3.3	2.1
Orthos	16.5	9.4	10.1	8.8	11.0	4.5
Roth	53.8	65.1	63.0	57.1	56.5	48.1
Vari-Simplex	2.2	1.9	8.0	4.4	7.6	5.3
Self-ligating	8.8	11.3	5.8	9.9	6.5	9.9
Standard edgewise	48.4	44.3	37.0	42.9	42.4	59.7
Tip-Edge	1.1	0.9	1.4	3.3	1.1	2.9

TABLE 27
ROUTINE USE OF FIXED APPLIANCES BY GEOGRAPHIC REGION

	NE	MA	SA	ESC	ENC	WNC	MTN	WSC	PAC
Begg	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bidimensional	15.6	5.8	4.7	2.7	2.4	0.0	1.8	1.2	2.7
Bioprogressive	3.1	3.5	8.6	2.7	4.1	0.0	12.5	3.6	9.6
Lingual	0.0	1.2	0.8	2.7	1.6	0.0	0.0	0.0	0.0
MEAW	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Preadjusted prescription									
Andrews	6.3	8.1	7.0	2.7	8.1	12.5	0.0	7.1	6.8
Hilgers	3.1	0.0	1.6	0.0	2.4	0.0	3.6	4.8	1.4
MBT	0.0	3.5	7.8	8.1	5.7	9.4	17.9	6.0	7.5
Orthos	12.5	3.5	8.6	2.7	13.0	0.0	5.4	8.3	13.7
Roth	50.0	67.4	61.7	64.9	48.0	59.4	46.4	51.2	52.1
Vari-Simplex	3.1	2.3	5.5	2.7	3.3	3.1	10.7	14.3	3.4
Self-ligating	6.3	7.0	3.1	5.4	13.8	6.3	5.4	15.5	11.0
Standard edgewise	37.5	44.2	53.9	54.1	38.2	53.1	48.2	52.4	50.0
Tip-Edge	3.1	4.7	1.6	2.7	1.6	3.1	3.6	1.2	1.4

TABLE 28
ROUTINE USE OF FIXED APPLIANCES BY GROSS INCOME LEVEL

	Less than $200,000	$201,000-400,000	$401,000-600,000	$601,000-850,000	$851,000-1,100,000	More than $1,100,000
Begg	0.0%	0.0%	0.8%	0.7%	0.0%	0.5%
Bidimensional	7.1	2.4	2.4	5.2	5.0	3.3
Bioprogressive	7.1	8.4	5.5	6.5	7.9	4.2
Lingual	0.0	0.0	0.0	0.7	0.0	1.4
MEAW	0.0	0.0	0.0	0.0	0.0	0.5
Preadjusted prescription						
Andrews	0.0	10.8	8.7	6.5	5.7	8.0
Hilgers	0.0	2.4	0.8	2.0	2.9	2.8
MBT	7.1	8.4	5.5	5.2	8.6	6.6
Orthos	7.1	4.8	10.2	5.9	10.0	11.3
Roth	66.7	56.6	55.9	60.1	51.4	54.9
Vari-Simplex	2.4	1.2	4.7	10.5	5.0	3.8
Self-ligating	2.4	2.4	6.3	10.5	12.9	9.4
Standard edgewise	64.3	65.1	37.8	40.5	46.4	49.8
Tip-Edge	2.4	1.2	2.4	2.0	2.9	1.9

Brackets

The newest practices reported the highest percentages of ceramic, gold, and combination brackets, and were the most likely to use .022" slots (Table 29). Older practices used more stain-less steel and .018" brackets and did more recycling.

Metal and plastic brackets were most popular in the West North Central area; ceramic brackets in the South Atlantic region; gold and

TABLE 29
BRACKETS USED (MEANS) BY YEARS IN PRACTICE

	1-5	6-10	11-15	16-20	21-25	26+
Stainless steel	80.6%	84.2%	85.1%	86.1%	86.8%	85.8%
Ceramic	15.7	10.0	9.4	10.3	9.1	9.2
Plastic	0.4	0.9	0.7	1.3	0.4	1.0
Gold	2.9	2.3	2.8	2.2	2.1	1.6
Titanium	0.2	0.5	0.1	0.6	2.1	1.1
Combination	3.2	3.0	2.2	1.3	1.7	2.0
Slot size						
.018"	33.8	38.3	39.8	38.4	45.7	44.3
.022"	60.4	53.5	54.2	59.2	51.9	50.4
Bidimensional	6.2	8.0	5.1	1.1	1.2	3.7
Other	3.0	4.3	2.4	1.7	4.5	6.9
Recycling						
Metal	1.8	0.7	1.9	2.6	2.9	7.9
Ceramic	0.0	0.1	0.1	0.0	0.0	0.7

TABLE 30
BRACKET TYPES USED (MEANS) BY GEOGRAPHIC REGION

	NE	MA	SA	ESC	ENC	WNC	MTN	WSC	PAC
Stainless steel	86.4%	84.7%	84.1%	85.9%	83.3%	88.0%	83.2%	84.4%	86.7%
Ceramic	11.1	8.9	13.1	11.5	8.4	9.3	11.3	9.8	8.2
Plastic	1.2	0.8	0.6	0.8	1.2	3.0	0.7	0.7	0.5
Gold	1.3	1.1	1.1	3.6	2.9	1.9	4.3	1.3	3.0
Titanium	2.3	1.7	0.0	0.0	0.2	0.0	0.2	1.2	0.4
Combination	0.3	2.5	1.8	3.8	3.4	0.2	3.9	1.5	1.5
Slot size									
.018"	28.6	32.5	42.5	37.2	41.7	28.6	50.2	51.8	34.8
.022"	52.1	54.3	56.0	57.1	54.0	68.1	48.1	42.1	62.5
Bidimensional	20.3	8.2	3.8	0.0	3.2	0.0	0.2	3.7	2.5
Other	9.3	6.5	3.0	8.6	3.4	7.4	5.7	3.1	1.8
Recycling									
Metal	2.5	6.2	3.1	2.7	5.8	5.9	1.2	3.6	4.3
Ceramic	0.0	0.2	0.1	0.4	0.4	0.0	0.0	0.0	0.6

TABLE 31
BRACKET TYPES USED (MEANS) BY GROSS INCOME LEVEL

	Less than $200,000	$201,000-400,000	$401,000-600,000	$601,000-850,000	$851,000-1,100,000	More than $1,100,000
Stainless steel	85.4%	87.2%	86.7%	86.1%	85.9%	81.4%
Ceramic	11.7	7.8	9.2	10.1	10.8	11.3
Plastic	1.0	0.3	0.6	0.5	0.8	1.5
Gold	0.5	1.0	1.1	2.0	1.6	4.0
Titanium	1.3	1.3	0.4	1.4	0.4	0.5
Combination	1.8	1.5	1.3	4.0	1.2	2.7
Slot size						
.018"	39.1	37.3	44.3	40.6	37.0	43.1
.022"	55.0	57.6	51.4	53.6	57.0	52.3
Bidimensional	5.4	3.7	4.0	5.0	5.4	3.1
Other	4.9	5.1	5.4	2.3	5.1	3.9
Recycling						
Metal	4.8	6.7	7.2	2.2	4.2	2.6
Ceramic	0.0	1.3	0.1	0.3	0.1	0.1

TABLE 32
ROUTINE USE OF ADHESIVES BY YEARS IN PRACTICE

	1-5	6-10	11-15	16-20	21-25	26+
Direct bonding	93.4%	87.9%	88.4%	93.4%	89.1%	92.6%
Indirect bonding	8.8	11.2	13.0	4.4	13.0	8.2
Light curing	86.8	84.1	73.9	71.4	68.5	72.0
Glass ionomer	22.0	13.1	22.5	16.5	17.4	17.7
Sealant	28.6	45.8	41.3	39.6	43.5	45.7
Self-etching primer	37.4	26.2	19.6	16.7	23.9	19.8
Phosphoric acid etchant	72.5	77.6	78.3	80.2	75.0	76.5
Type of adhesive (chemically cured)						
One-paste	14.3	21.5	23.9	25.3	17.4	23.0
Two-paste	16.5	14.0	26.1	28.6	25.0	25.9
Type of adhesive (light-cured)						
One-paste	73.6	77.4	65.9	64.8	58.7	65.4
Two-paste	3.3	7.5	8.7	9.9	10.9	9.9
Precoated	19.8	14.0	15.9	9.9	10.9	7.4
Type of band cement						
Glass ionomer	29.7	47.7	47.1	44.0	52.2	40.3
Light-cured glass ionomer	57.1	41.1	37.0	35.2	31.5	24.3
One-paste compomer (light-cured)	13.2	9.3	12.3	14.3	9.8	15.2
Two-paste compomer	2.2	7.5	4.3	4.4	2.2	7.8
Zinc phosphate	4.4	2.8	1.4	4.4	5.4	15.2

combination brackets in the Mountain states; and titanium brackets in New England (Table 30). The .018" slot was used most in the West South Central and Mountain regions, the .022" slot in the West North Central and Pacific regions. The most recycling appeared to be done by Middle Atlantic, West North Central, and East North Central orthodontists, and the least by Mountain practitioners.

Middle-income practices tended to use more stainless steel brackets and fewer ceramic brackets than other respondents did, and they also recycled more of their metal brackets (Table 31). The highest-income practices used the most plastic and gold brackets.

Adhesives

Light-cured adhesives, self-etching primers, and precoated brackets were used most routinely by the newest practices (Table 32). Among band cements, compomers and zinc phosphates were used most routinely by the oldest practices.

West South Central orthodontists were the most routine users of indirect bonding, light curing, and sealants (Table 33). Glass ionomer bonding adhesives were used most in the South Atlantic region, and light-cured glass ionomer cements in the Middle Atlantic States. Self-etching primers were most popular in the East North Central region, and precoated brackets and glass ionomer cements in the West North Central region.

TABLE 33
ROUTINE USE OF ADHESIVES BY GEOGRAPHIC REGION

	NE	MA	SA	ESC	ENC	WNC	MTN	WSC	PAC
Direct bonding	87.5%	94.2%	96.1%	91.9%	89.5%	96.0%	92.9%	84.5%	89.7%
Indirect bonding	6.3	8.1	3.1	8.1	12.1	9.4	8.9	17.9	11.0
Light curing	65.6	62.8	78.1	75.7	77.4	78.1	76.8	83.3	74.7
Glass ionomer	18.8	17.4	26.6	24.3	13.7	15.6	10.7	20.2	15.1
Sealant	34.4	43.0	43.0	37.8	38.7	53.1	21.4	57.1	42.5
Self-etching primer	18.8	19.8	18.9	24.3	31.5	28.1	26.8	21.4	16.4
Phosphoric acid etchant	71.9	76.7	82.0	73.0	71.8	81.3	78.6	78.6	78.8
Type of adhesive (chemically cured)									
One-paste	34.4	24.4	19.5	21.6	17.7	12.5	19.6	26.2	26.0
Two-paste	28.1	29.1	25.0	16.2	26.6	31.3	17.9	15.5	19.2
Type of adhesive (light-cured)									
One-paste	65.6	61.6	71.1	62.2	66.9	56.3	60.7	80.7	67.8
Two-paste	3.1	10.5	10.2	13.5	7.3	18.8	7.1	4.8	7.5
Precoated	15.6	5.8	11.7	10.8	15.3	18.8	21.4	7.1	12.3
Type of band cement									
Glass ionomer	37.5	32.6	50.0	45.9	35.5	59.4	41.1	46.4	46.6
Light-cured glass ionomer	21.9	38.4	36.7	24.3	34.7	34.4	30.4	35.7	37.7
One-paste compomer (light-cured)	15.6	7.0	11.7	2.7	16.1	12.5	21.4	17.9	11.6
Two-paste compomer	3.1	11.6	5.5	8.1	4.0	9.4	3.6	2.4	4.1
Zinc phosphate	9.4	7.0	8.6	8.1	10.5	6.3	8.9	4.8	5.5

Practices with the highest gross incomes were the most likely to use indirect bonding, light curing, and self-etching primers (Table 34). Precoated brackets were used most by low-income practices, but adhesive usage in general did not seem to correlate with income level.

(TO BE CONTINUED)

TABLE 34
ROUTINE USE OF ADHESIVES BY GROSS INCOME LEVEL

	Less than $200,000	$201,000-400,000	$401,000-600,000	$601,000-850,000	$851,000-1,100,000	More than $1,100,000
Direct bonding	90.5%	91.6%	93.7%	90.2%	90.0%	90.2%
Indirect bonding	7.1	10.8	4.7	9.2	10.7	12.6
Light curing	73.8	57.8	73.2	72.5	81.4	82.7
Glass ionomer	19.0	10.8	17.3	16.3	21.4	20.6
Sealant	35.7	42.2	39.4	47.7	40.7	40.7
Self-etching primer	16.7	13.3	22.0	24.2	22.1	27.2
Phosphoric acid etchant	78.6	79.5	74.8	77.1	80.0	75.2
Type of adhesive (chemically cured)						
One-paste	28.6	22.9	28.3	17.6	18.6	21.5
Two-paste	14.3	26.5	17.3	32.0	19.3	22.4
Type of adhesive (light-cured)						
One-paste	73.8	56.1	64.6	73.9	65.0	71.0
Two-paste	2.4	7.2	7.1	6.5	17.1	7.9
Precoated	19.0	10.8	11.0	8.5	14.3	12.6
Type of band cement						
Glass ionomer	21.4	34.9	46.5	45.8	45.0	45.8
Light-cured glass ionomer	42.9	27.7	32.3	34.0	43.6	35.0
One-paste compomer (light-cured)	11.9	8.4	13.4	18.3	10.7	12.6
Two-paste compomer	2.4	3.6	8.7	3.3	5.7	6.1
Zinc phosphate	16.7	21.7	6.3	5.9	3.6	3.7