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PREDICTING SHORT AND LONG ACTIVE ORTHODONTIC TREATMENT DURATION USING PRETREATMENT VARIABLES

by

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Submitted in partial fulfillment of the requirements for the degree of Master of Science in Dentistry

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Abstract

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An accurate prediction of active orthodontic treatment duration has been a challenging task. In the past, many studies have examined variables that could not be assessed until treatment was completed. Numerous broken appliances and missed appointments, do not enable the clinician to predict treatment duration. This study examined sixty-one pretreatment variables from four hundred subjects treated at the graduate orthodontic clinic at Case Western Reserve University. All subjects were between the ages of 9 and 18 and treated by residents in the graduating classes of 2003 through 2005. Short treatment duration was defined as less than, or equal to, twenty months, while treatment time of greater than, or equal to thirty months, was designated as long treatment duration. Pretreatment records were used to extract

information on the following subgroups: planned treatment, socio-demographic, behavioral, dental, skeletal and soft tissue, and practice factors. The hypothesis that one or more pretreatment variables is independently associated with short or long treatment duration was tested by univariable and multivariable logistic regression modeling. The multivariable model determined that non-extraction, absence of deciduous teeth, less than 80% overbite, less of than 6 mm maxillary crowding, normally positioned lower incisors to NB line, presence of restorations, and good oral hygiene were associated with short treatment duration, while decreased lower facial height, extractions, presence of deciduous teeth, poor school grades, severe overjet, greater than 80% overbite, and maxillary crowding of 6 mm or more to be associated with long treatment duration.

DEDICATION

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INTRODUCTION

There has been an extensive amount of research performed on the effects of orthodontic treatment, but the efficacy of orthodontics has yet to be extensively addressed. As we embrace the modern era of evidence based treatment, we, as orthodontists owe it to our patients and our profession to develop a better understanding of treatment duration. The most common question that a prospective orthodontic patient is likely to ask the orthodontist is "how long will I have to wear my braces?" The orthodontist is likely to give the patient an estimation based on previous experiences and his or her clinical judgment. At times, the orthodontist is asked to give an estimate during the initial examination, without the aid of a full set of records. The orthodontist may also underestimate the treatment length in an attempt to please the patient. Assuming that the orthodontist bases the treatment fee on the anticipated length of time needed to complete the case, this becomes a crucial decision; one that will determine the doctor's profit, or lack thereof.

In a survey conducted by an orthodontist in private practice, "true and accurate timing estimates" were second only to a reduction in treatment fees when 146 consecutively treated patients were questioned (O'Conner 2000).

When a patient's treatment extends beyond the estimated time frame, the orthodontist has to make a decision. He can terminate treatment, and accept a compromised result; talk with the patient and/or family about a new treatment fee to continue treatment or complete the case realizing that the profit margin is decreasing. Often times the doctor chooses to fulfill his obligation to treat the patient until the case is completed, and absorb the additional expense. The orthodontist must cross a fine line in pleasing the patient, but also making sure that he is adequately paid for his time. The term "treatment overruns" was first discussed by Shia in 1986. Shia defined treatment overruns as patients who have paid for their orthodontic care, yet they still require additional treatment. After years of practice, orthodontists begin to accumulate patients that are no longer paying for treatment. He estimated that 20-30 percent of some practices were

treatment overruns. Faced with the alternatives of sending a poor treatment result out into the community or facing defensive, angry parents, the orthodontist might choose to absorb the expense of the extended treatment duration (Shia 1986). The longer the orthodontist is in practice, the greater the number of unpaid patients that still require treatment. This can be a devastating discovery when it becomes time to sell an orthodontic practice (Shia 1986). This also is an important figure to investigate when a new orthodontist is interested in buying an existing practice. Many orthodontists might be unpleasantly surprised to find how many of their patients are still receiving treatment long after their initial time estimate.

There are many factors that may be responsible for treatment overruns, many of which the orthodontist is unable to control. Poor cooperation and broken appointments are often the result of emotional or family problems. If the orthodontist could more accurately predict which patients are going to be poor cooperators, or who will have the most broken appliances, this would help in estimating treatment duration. Therefore, we assessed possible proxy measures such as caries

experience and oral hygiene status, to aid in determining which patients are likely to have a short treatment duration, and those patients that are more prone to longer treatment duration. More importantly, if the orthodontist was able to predict which patients were likely to have extremely short treatment times (< 20 months) and those patients who were likely to have extremely long treatment times (> 30 months), the practitioner could more accurately determine an appropriate fee, and give the patient a better prediction for the time of appliance removal.

REVIEW OF THE LITERATURE

There are variables that have been shown to affect treatment duration which do not depend on patient cooperation. Fink and Smith collected data from 118 patients from six different private practices ranging in age from 8 years 5 months to 50 years and 11 months. Data were collected on ten variables from radiographs, dental casts, photographs, and office charts. The mean treatment duration for the six offices was 23.1 months with a range of 19.4-27.9 months. The majority (98%) patients were treated with pretorqued, preangulated appliances. Four offices used an 0.018 bracket slot, one office used an 0.022 slot, and one used a combination. Thirty eight percent of the patients had extractions, and 32% were given a headgear. Correlation coefficients and linear regression were calculated between several variables and the duration of treatment. Fifty percent of the variation in treatment duration could be explained with five variables: (1) number of premolars extracted, (2) number of broken appointments, (3) pretreatment mandibular plane angle, (4) pretreatment

ANB angle, and (5) pretreatment Salzman index. The non-extraction cases had a mean treatment time of 21.95 months, while the two premolar extraction group averaged 25.0 months. Patients that had four extracted premolars averaged 26.18 months. The Salzmann index takes into account teeth that are missing, crowded, rotated, blocked out, spaced, and the presence of mesio-occlusion, disto-occlusion, crossbite, open bite, and excessive overbite or overjet. It is not, however, sensitive to the highly specific details of a finished case. In the study they noted that the clinician's technique for finishing a case may have lead to the large range in treatment duration. Upon closer examination of their statistical approach, they actually explained only 24% of the variance in treatment time. Their final R was 0.499, and thus R_2 was 0.249. (Fink, Smith 1992).

It is not uncommon for some clinicians to spend several months detailing and finishing the occlusion. In contrast, other clinicians may elect to remove fixed appliances, and place tooth positioners or spring aligners to obtain their final occlusal result. Often times this decision is based on the amount of time the patient has been in "active" treatment. If the patient

is getting "burned out" or there is a risk of decalcification, decay, or periodontal concerns, the clinician may remove the appliances and place a tooth positioner to finish the case. Beckwith et al., in 1999, tried to expand on past results in a retrospective study comprised of 140 consecutively completed cases from five offices. Thirty-one variables related to patient characteristics, diagnostic factors, modality of treatment, and patient cooperation were evaluated. All of the clinicians used used preadjusted, and pretorqued appliances. Two of the practitioners used appliances with an 0.018 inch slot; two used an 0.022 inch slot, and one practitioner used an 0.018 inch slot in the maxillary arch, and an 0.022 inch slot in the mandibular arch. The average length of treatment was 28.6 months with a range of 23.4 to 33.4 months. Again, almost half of the variation (46.9%) could be explained by five of the original thirty-one variables: missed appointments, broken appliances, poor oral hygiene, phases of treatment, and prescribing headgear wear. Treating patients in more than one phase added an additional eight months to treatment. They also discovered that poor oral hygiene was associated with an increase of 0.67 months of

treatment per negative chart entry. The prescription of headgear wear also had an average increase in treatment duration of 3.66 months. Similar to the finding of Vig et al., they did not find a statistically significant increase in treatment time (additional 1.4 months) for those patients receiving extractions. It would have been of interest if the authors had commented on the affect of slot size in relation to treatment duration. They mentioned that there was a difference between the practices, but did not comment on the effect it had on treatment time. (Beckwith et al. 1999).

In 1998, Vig et al. attempted to contact 238 Michigan orthodontists in order to help understand the ranges in treatment duration. Their pilot study focused on the duration of treatment with and without extraction. Vig selected five practices which were at the extremes of extraction and nonextraction. Records from 438 patients were examined. The average length of treatment was determined to be 31 months, and was slightly longer for the extraction patients. The mean extraction rate was 39% with a range from 5% to 88%. The duration of treatment may be affected not only by the extraction decision, but also by such variables as whether or not

both arches are treated and the number of phases of treatment. They found that the duration of treatment was also affected by which practice was chosen. Considerable differences exist in treatment strategies between practices with low extraction rates and those with higher extraction rates. However, within their sample it is interesting to note that the practice with the highest extraction rate had the shortest mean duration of treatment (Vig et al. 1990).

Shorter treatment times are desirable because of the patients' shorter exposure to biological and psychosocial side effects, and lower financial cost (Jarvinen et al. 2004). Therefore, it is important to recognize factors which tend to lengthen treatment. Jarvinen et al. looked at a random sample of ninety-three orthodontic patients and analyzed 15 different variables. The mean treatment time was 2.9 years. This study, in particular, focused on children ranging in age from 7 to 13 years at the start of treatment. The data revealed that 41% of the variance could be explained from the following variables: sex, malocclusion class, patient's age at the start of treatment, type of appliances used, number of missed appointments, and main additional diagnosis. This study

also evaluated pretreatment PAR scores; however, the results of the study found the pretreatment PAR scores to be statistically insignificant when critically evaluated. They did find that the treatment of class I and class II division 1 patients treated with a combination of fixed and removable appliances had a prolonged duration of treatment.

A master thesis, carried out at Case Western Reserve University in 2001, also supports the popular notion that the average orthodontic case takes 24 months to treat. The study obtained data on 25,364 patients from thirteen practices, all using the same patient management software program. The average overall duration of orthodontic treatment was 25.2 months. The study then stratified the data into children and adults and found treatment time for children (< 18 years old) slightly longer at 25.5 months, while the adults (> 18 years old) had a mean treatment duration of 24.1 months (Park 2001).

Many past studies of treatment duration included variables that the orthodontist can not predict. In 2005, while at Case Western Reserve University, Lowdenback examined forty-one pretreatment variables in

an attempt to discover predictive variables which have an impact on treatment duration. Lowdenback studied the pretreatment records of 261 orthodontic patients. Data were collected from patient histories, initial records, and clinical chart entries. His analysis showed that 31.4% of the variation in treatment duration could be explained by six variables: pre-PAR score, number of extractions, start age, lower facial height, maxillary midline deviation, and Angle classification.

In 2006, Skidmore et al. investigated factors influencing treatment time. The sample consisted of 366 consecutively debonded orthodontic patients. All patients were treated by the same clinician in a private practice setting in New Zealand. Thirty-four variables were collected from four categories: sociodemographic characteristics, malocclusion, treatment methods, and patient cooperation. The average treatment time was 23.5 months with a standard deviation of 4.7, and a range of 12-37 months. A multiple regression model explained 38% of the variance and identified 9 significant variables, five of which were pretreatment: male sex, maxillary crowding of 3 mm or more, class II molar relationship, extractions, and delayed extractions. The remaining four

variables were poor oral hygiene, poor elastic wear, bracket breakage, and brackets rebonded for repositioning. On average, extractions resulted in an additional 3.3 months of treatment. Similarily, the decision to extract midway (after three months of full bonded treatment) through treatment resulted in an additional 5.9 months of treatment. Treatment time for males was also 1.2 months longer than for females. Maxillary or mandibular crowding of 3 mm or more was significantly associated with treatment time, increasing it by 2.8 and 2.3 months, respectively. Class II molar relationship had a mean treatment time 2.6 months longer than class I malocclusion. The fact that the clinician excluded all patients who were debonded early due to poor cooperation or personal reasons introduced an element of sample selection bias (Skidmore et al. 2006).

In 1996, Robb et al. looked at the effectiveness and duration of orthodontic treatment in adults and children treated in three separate private practices. The sample consisted of thirty-two adults (mean age 31.5 years) and forty adolescents (mean age 12.9 years); all participants had four premolars extracted as part of their treatment strategy. The American weighted PAR index was used to

score the pretreatment casts. The mean pretreatment PAR scores were similar for the two groups; 25.4 for the adults, and 25.5 for the adolescents. The majority of the patients from both samples had a class I malocclusion (30 of 32 in the adult group, and 38 of 40 in the adolescent group). The difference in treatment duration was not found to be statistically significant. The adolescence patients had a mean treatment duration of 29.4 months with a standard deviation of 8.8, while the adults had a mean treatment time of 30.6 months with a standard deviation of 8.0. This study utilized multiple regression procedures in an attempt to explain the variation in treatment duration. The results indicated that the number of broken appointments and number of broken appliances were able to explain 46% of the variability in treatment duration. Although, both the number of broken appliances and number of broken appointments appear to be related to treatment duration, they are not variables that can be determined prior to the beginning of treatment. Although the study was able to explain 46% of the variation in treatment duration, cephalometric variables were not included as possible explanatory variables (Robb et al. 1996).

In 2001, Bremen and Pancherz studied the efficiency of early and late class II division 1 treatment. Their study had a total of 204 subjects divided into three categories based on dental development. The early mixed dentition (eruption of permanent incisors), late mixed dentition (undereruption of canines and premolars), and permanent dentition (canines and premolars fully erupted). All patients were treated by graduate orthodontic residents at the University of Giessen. Pretreatment PAR scores were collected from each subject. The orthodontic appliances used during active orthodontic treatment were of four types: (1) functional, (2) combination (functional and fixed), (3) Herbst in combination with multibracket appliances, and (4) multibracket appliances alone. The average treatment duration for all patients was 37 months (range 6-91 months). The treatment duration tended to decrease with an increase in dental development. Patients with a permanent dentition had a mean treatment time of 21 months compared with the early mixed and late mixed dentition which had a mean treatment time of 57 and 33 months respectively. For the 204 patients, the mean pretreatment PAR score was 29 points. With progressing

dental development, the pretreatment PAR scores increased. One explanation for this is the fact that the PAR score does not take into consideration primary teeth. Also, a patient's malocclusion that is present in the early mixed dentition is unlikely to improve, and often gets worse. Their study also showed that treatment time was shorter with fixed appliances than with removable appliances. Bremen and Pancherz concluded that class II division 1 patients were more efficiently treated in the permanent dentition with the use of fixed appliances.

McGuinness and McDonald (1998) studied the affects of operator change on treatment duration in the postgraduate teaching environment. The study was comprised of 183 consecutively debonded patients from a district general hospital in the United Kingdom. From the 183 patients, sixty were selected at random and placed into two groups: (A) those that were treated by a single operator, and (B) those that were transferred to a different operator in mid-treatment. The pretreatment and posttreatment PAR scores were collected for each patient. The mean pretreatment PAR score for group A was 28.06, and 30.66 for group B. However, the average

treatment duration for group A was 17.67 months (standard deviation 4.5 months)and 26.1 months (standard deviation 6.78) for group B. It was found that the increase in treatment time did not have an affect on the standard of orthodontic treatment result as assessed by the PAR score. This study suggests that a change in operator contributes significantly to a lengthening of treatment times. The study did find a strong linear relationship between the initial PAR score and the change in PAR score for both groups. No correlation was found to exist between the length of treatment and the quality of the orthodontic result.

In 2003, Popowich et al. performed a study to identify clinical factors that predict treatment length for patients with class II malocclusion. They examined 237 patients from three private offices in Alberta, Canada. All patients were between the ages of 10 and 16, data were collected from patient information, dental models, lateral cephalograms, and treatment information. The type of appliance used to correct the class II molar relationship was also taken into account. As in other previous studies, stepwise multiple linear regression models were used to analyze each category to determine

which variables are significantly associated with treatment duration. The study had a total of twenty-five independent variables. Six variables were identified as explaining 56.7% of the variation in class II treatment length: type of class II appliance, number of months of class II appliance wear, number of months of interarch elastic wear, maxillary expansion, number of debonds, and average time between appointments. Although age was not included in the regression model, it had a negative regression coefficient, meaning that treatment duration decreased as patient age increased. They also found that use of the Herbst appliance, rather than a headgear, increased treatment duration by an average of nine months. This might be due to the fact that many times maxillary expansion is required before Herbst therapy can begin. Similarly, maxillary expansion tends to increase treatment length by an average of 2.6 months. The amount of time that class II elastics are worn also was shown to be statistically significant. This finding concurs with Shia and other studies, which found that patient cooperation plays a significant role in treatment duration. The number of patient debonds was also found to be significant and is a proxy measure of patient

cooperation. Other studies have shown that missed or broken appointments are significantly associated with longer treatment duration; however, this study did not support those findings. The study did support the findings of Beckwith et al. and Vig et al. that extractions did not significantly influence treatment duration. While other studies have shown that extractions are linked to increased treatment time, Fink and Smith determined that an additional 0.9 months of treatment time occurred for each premolar extracted (Popowich et al. 2003).

Kim et al. (2000) were interested only in cephalometric variables that might predict class II treatment outcomes. In their study of 223 class II division 1 malocclusions from the Department of Orthodontics at the Ohio State University, forty-one skeletal, dental, and soft tissue cephalometric variables were collected. Although the age of the subjects was not specified, each patient had a pretreatment overjet of at least 5 mm. Linear regression models were used to estimate the amount of variance that could be explained by the forty-one cephalometric variables. Of the forty-one possible cephalometric variables, only two were

statistically significant: the upper incisor to NA, and the lower incisor to NB; these variables explained only 20% of the variation in treatment duration. Beacause one of the inclusion criteria was an overjet of at least 5 mm, the significance of the upper and lower incisor angulation is not surprising. The highest R_2 (39.2) was for pretreatment PAR, indicating that the cephalometric variables are best at predicting pretreatment PAR scores.

Chew and Sandham, in 2000, studied 177 consecutively debonded cases from the government dental clinic in Singapore. Their aim was to identify factors that influence treatment duration. All patients were treated in a single phase of orthodontics, with two-arch pre-adjusted Edgewise appliance with 0.022 inch slots. All casts were PAR scored and the following additional variables were collected: age at the start of treatment, gender, number of office visits, use of a headgear, and extractions. As with the majority of earlier studies, stepwise multiple linear regression was used to analyze the data. The mean PAR score for the 177 pretreatment cases was 30.24. This is a slightly higher value compared with other studies. The mean pretreatment score of the sample from the Norwegian Specialist Orthodontists

was 23.8 (Richmond, Andrews 1993), while the hospital orthodontic service in England and Wales was 28.8 (O'Brien et al. 1993). The authors stated that this may be due to the greater severity of malocclusion treated in the Singapore region. Their statistical analysis indicated that 49% of the variation on treatment duration was due to 4 variables: 1)frequency of office visits, 2)pre-treatment PAR scores, 3)extractions, and 4)use of headgear. This study only had five independent variables, and incidentally, four of five variables explained 49% of the variation. The study could have been improved by examining more potential explanatory variables. They did find that patients who were asked to wear a headgear on average had an increased treatment duration of 3.87 months. Similarly, extractions increased treatment time by an average of 3.72 months. However, the authors did not specify the number of teeth extracted, or when the teeth were extracted. (Chew, Sandham 2000).

In 1995, O'Brien et al. performed a retrospective study to determine the effectiveness of class II division 1 treatment. Their sample consisted of 250 class II division 1 patients between the ages of 11 to 14 who were

treated in the graduate orthodontic department at the University of Pittsburg. All patients had pretreatment overjets of 5 mm or greater, and all cases had pretreatment and posttreatment PAR scores. The mean duration of treatment for the total sample was 28.1 months with a standard deviation of 9.9. The group with extractions was comprised of 171 patients who had a mean treatment time of 30.6 ± 10.4 months. As one might expect, those patients that were treated in two phases, had an average treatment time of 33.7 ± 10.4 months; whereas, single phase treatment took on average 27.1 ± 9.8 months. The group that had the shortest treatment times were the non-extraction patients with a mean treatment duration of 24.8 ± 9.2 months. The total average pretreatment PAR score was 49.3 ± 14.8. Multiple linear regression statistics were applied to determine those independent variables that were able to explain variations in treatment duration. Five variables were identified as significantly associated with duration of treatment: 1)pretreatment PAR score 2)number of treatment stages 3)percentage of appointments attended 4) number of appliance repairs and 5)extractions. As with the majority of studies dealing with treatment duration,

several of the independent variables are not "pre-treatment" variables. Despite the fact that the orthodontist probably has little insight into how reliable the patient will be at making their appointments, the number of broken appliances and their level of cooperation, these variables continue to be studied (O'Brien et al. 1995).

The most common type of fixed orthodontic appliance used today is the Edgewise appliance invented more than 75 years ago by Edward Angle. Although the standard Edgewise appliance is manufactured in many different angulations (Roth, Hilgers, Alexander, etc), there are only two slot dimensions used. Amditis and Smith were interested in comparing the treatment duration of patients treated with the Edgewise appliance with 0.018" and 0.022" slots. In 2000, they studied sixy-four patients, half who were treated with 0.018" brackets and the other half with 0.022" brackets. All patients underwent full fixed appliance therapy and were treated by the same clinician using sliding mechanics. The mean treatment duration for the 0.018" group was 20.2 months with a standard deviation of 3.1 months. The mean treatment duration of the patients treated with the

0.022" brackets was 21.7 months with a standard deviation of 3.5 months. The difference was statistically significant. Interestingly, the treatment times for the non-extraction patients in each group were virtually identical: 18.8 months for the 0.018" and 18.7 months for the 0.022". However, treatment duration for the extraction patients was statistically significant. Patients who had teeth extracted and were treated with 0.018" appliances had an average treatment time of 20.5 months, while patients with extractions and 0.022" appliances had a mean treatment duration of 22.6 months. These results suggest that non-extraction treatment duration is similar regardless of which bracket slot size is used, while space closure with sliding mechanics may be achieved more efficiently with 0.018" slot brackets.

Impacted teeth can often affect treatment duration. The most commonly impacted tooth (after the third molar) is the maxillary canine. In 2000, Stewart et al. designed a study to investigate the relationship between treatment duration and palatally impacted maxillary canines. The sample consisted of forty-seven patients with at least one impacted canine. All patients were younger than 20 years of age, had full fixed non-

extraction treatment, and regular attendance of their orthodontic appointments. Twenty-nine of the subjects had a unilateral impaction, while eighteen had bilateral impactions. The average treatment duration for the impacted canine group was 28.3 months(range 13-50 months) compared to 25.8 months for the unilateral impaction group and 32.3 months for the bilateral group. The control group had a mean treatment duration of 22.4 months (range 10-41 months). Linear regression indicated that the only variables of significance were the age of the patient and the amount of mandibular crowding both of which accounted for 30% of the variation in treatment duration. Age was negatively correlated with the length of orthodontic treatment. Starting treatment on patients that were younger that 12 years of age, took an average of more than 35 months; whereas, treatment that began on patients that were 18 years of age or older averaged only 20.8 months. This difference could be due to the fact that the younger patients had more severely impacted canines than the older patients (Stewart et al. 2000).

Private Practice vs University Setting

In the past there has been some question as to whether patients treated by graduate orthodontic residents are treated to the same standard as those patients treated in private practice. In 2004, Cook et al. studied this very hypothesis. The treatment records of 139 randomly selected adolescents who had received comprehensive orthodontic treatment were examined. Seventy-seven of the subjects had been treated in three different postgraduate orthodontic clinics, and sixty-two had been treated in three different private orthodontic practices. Each patient had a class II division 1 malocclusion, an ANB angle equal to or greater than 4 degrees, and premolar extractions. Posttreatment casts were scored using the ABO objective grading system. The mean treatment duration for the university sample was 31.8 ± 9.6 months compared to 30.0 ± 8.6 months for the private practice sample. The marginal ridge height measurements of the private practice group had a significantly lower score than the university patients. However, the university sample had significantly better scores on the occlusal contacts and interproximal contact variables. However, when the overall ABO OGS scores were examined, there was not a statistically significant

difference between the patients treated in a university setting and the patients treated in private practice.

A similar study was performed by Mascarenhas and Vig in 2001. Their sample consisted of 143 patients that were treated in three separate private practices, and 165 patients whose treatment was rendered by graduate orthodontic residents at the Ohio State University. In contrast to the previous example, Mascarenhas and Vig utilized the PAR index to asses the outcome. All patients were under 25 years of age, received only orthodontics, and had complete orthodontic treatment. It should be noted that this study also included a small number of patients who were treated in two phases. Data were collected from patient charts and pre/post-treatment study models. All pretreatment variables between the two study populations were statistically similar with the exception of the patient age at the start of treatment. The pretreatment PAR scores of the private practice patients were 24.9 ± 10.3, while the Pre PAR scores of the patients treated in the university setting were 25.0 ± 10.3. This data is not consistent with the data collected on two separate occasions at Case Western Reserve University, Department of Orthodontics. Feghali

et al. (1995) obtained one hundred consecutively debonded cases from 1993-94 and found the mean pretreatment PAR scores to be 34 ± 10. In a similar study, Feghali et al. (1996) evaluated seventy-five patients who were treated from 1980 to 1985. The mean pretreatment PAR score was 37.52 ± 11.32.

Interestingly, Mascarenhas and Vig (2001) found the mean start age for the private practice orthodontists was 12.2 +- 1.9 years of age, while the patients treated by the graduate residents had an average age of 13.5 +/- 3.2; this difference was statistically significant. The private practice orthodontists were also 1.9 times more likely to start treatment on patients while in their mixed dentition and were 3.9 times more likely to extract primary teeth than the residents. The quality of care for the two delivery systems was evaluated by using the post treatment PAR, and percent reduction PAR scores. Although the private practice orthodontists had an average post treatment PAR score that was less than the residents', the duration of treatment, was, however, statistically significant. The graduate residents on average had treatment times of 27.5 ± 11.8 months, while the private practice orthodontists finished cases with a

mean treatment duration of 33.0 ± 18.5 months. One possible explanation offered for this increased treatment time was that private practice orthodontists began treatment at an earlier age. They may also spend additional time finishing and detailing the occlusion not evaluated by the PAR score.

Kelly and Springate, in 1996, evaluated twenty consecutively completed orthodontic cases from ten different orthodontists working in the General Dental Service in England. The mean pre-PAR score for the two-hundred cases was 26.6 with a standard deviation of 9.9. The average duration of active orthodontic treatment of the two-hundred cases was 22 months with a range from 9 to 48 months. Of the two-hundred cases assessed for this study, 81.5% had extractions, while 22.5% of the sample had extra-oral forces applied at some stage during treatment. Following multiple linear regression analysis, the only predictors of increased treatment duration were the number of visits and the use of extra-oral force.

Dyken and co-workers, in 2001, performed a study to evaluate the reduction in pretreatment PAR scores between ABO certified orthodontists and graduate orthodontic

residents. Although they found no statistical difference between board certified orthodontists and graduate residents, they did show that a higher pretreatment PAR score and a greater percent reduction in PAR score were significantly associated with longer treatment duration.

PAR Index

The PAR index (peer assessment rating) was developed in Manchester, England in 1987 as an aid in recording the malocclusion at any stage of treatment. The index was formulated over a series of six meetings with a group of ten orthodontists. More than two-hundred dental casts representing developmental as well as pretreatment and post treatment stages were examined and discussed until agreement was reached regarding the individual features which would be assessed in obtaining an estimate of occlusion (Richmond et al. 1992). The concept of the PAR is to assign a score to various occlusal traits which make up a malocclusion. The individual scores are summed to obtain an overall total, representing the degree a case deviates from normal alignment and occlusion. The PAR score contains eleven components: 1)upper right segment, 2)upper anterior segment, 3)upper left segment, 4)lower right segment, 5)lower anterior segment, 6)lower

left segment, 7)right buccal occlusion, 8)overjet, 9)overbite, 10)centerline, and 11)left buccal occlusion. The PAR index was then validated by a group of seventy-four dentists and orthodontists. They developed a weighting system that was representative of the current British orthodontic opinion. A transparent ruler displaying the PAR grading scale is used to score the casts. The PAR index is meant to be a quick evaluation of malocclusion, whereby scoring pre and post-treatment casts takes approximately six minutes (Richmond et al. 1992).

In 1995, DeGuzman et al. attempted to validate the PAR index based on the American perception of malocclusion. A group of eleven orthodontists in private practice from Pennsylvania examined two-hundred study casts. They evaluated each case and gave their opinion regarding: the degree of deviation from ideal occlusion, the anticipated difficulty of treatment, and their perception of the approximate duation of treatment in months. Separate multiple linear regression models were constructed to asses the association between the components of the PAR index and the perceived malocclusion. The result was a weighted PAR index which

reflected the malocclusion severity and treatment difficulty. The mean American weighted Par index values are as follows for malocclusion severity: mild 17.17, moderate 39.79, and severe 53.56.

Logistic Regression

To the best of the author's knowledge, all previous studies examining treatment duration have utilized multiple linear regression models in an attempt to explain the variation in the duration of orthodontic treatment. Linear regression analysis is helpful in ascertaining the probable form of the relationship between variables, and ultimately is employed to predict how the value of one variable corresponding to a given value of another variable. In the multiple regression model, it is assumed that a linear relationship exists between the dependent variable and the independent variable. The dependent variables are often referred to as explanatory or predictor variables. Linear regression is the statistical method of choice when the dependent variable is continuous. However, another way to approach the statistical methodology is to collect the dependent variable as dichotomous rather than continuous, which

enables the use of logistic regression rather than linear regression.

Logistic regression allows independent or explanatory variables to be collected as continous or dichotomous, while the dependent variable is always dichotomous; diseased or not diseased. Logistic regression estimates the probability of a certain event occurring. The objective of the analysis of data that meet these criteria is known as the odds ratio. From the odds ratio, the association of the independent and dependent variables can be determined. The clinical application of an association, or odds ratio, tends to be better understood than variance.

STATEMENT OF HYPOTHESIS

There are pretreatment variables that predict short and long orthodontic treatment duration.

PRE-TREATMENT PREDICTORS OF ORTHODONTIC TREATMENT DURATION

By Reid M. Wenger,[a] Monica A. Fisher,[b] J. Martin Palomo,[c] and Lance T. Vernon,[d] and Mark G. Hans[e]

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Abstract

INTRODUCTION: The purpose of our study was to investigate the role of pre-treatment variables in predicting treatment duration. **METHODS:** This study examined pretreatment variables from 400 preteen and teenage patients who completed treatment in the Case graduate orthodontic clinic during 2003-2005. Short treatment duration was defined as less than or equal to 20 months, and long treatment duration was defined as greater than or equal to 30 months. The following information was abstracted from pretreatment records: planned treatment, sociodemographic, behavior, dental, skeletal and soft tissue anatomy, and practice factors. Univariable (unadjusted) and multivariable (adjusted) logistic regression modeling were used to quantify the association between patient characteristics and treatment duration by reporting the unadjusted odds ratios (OR_{Crude}) and adjusted odds ratio (OR_{Adj}) and 95% confidence interval (CI). **RESULTS:** Multivariable modeling found patients with non-extraction (OR_{Adj}=2.3; 95% CI: 1.3-4.2), no deciduous teeth (OR_{Adj}=3.0; 95% CI: 1.5-5.9), less than 80% overbite (OR_{Adj}=2.4; 95% CI: 1.3-4.4), less than 6 mm of maxillary crowding (OR_{Adj}=3.6; 95% CI: 1.7-7.7), and good oral

hygiene (OR_{Adj}=3.2; 95% CI: 1.3-1.8) were two to three times more likely to have short treatment duration. Patients with decreased lower facial height (OR_{Adj}=3.4; 95% CI: 1.6-7.1), extractions (OR_{Adj}=1.8; 95% CI: 1.0-3.2), deciduous teeth (OR_{Adj}=1.9; 95% CI: 1.0-3.4), poor school grades (OR_{Adj}=2.0; 95% CI: 1.1-3.8), excessive overjet (OR_{Adj}=2.3; 95% CI: 1.4-3.8), greater than 80%overbite (OR_{Adj}=2.0; 95% CI: 1.2-3.6), and more than 6mm of maxillary crowding (OR_{Adj}=2.6; 95% CI: 1.4-4.6) were two to three times more likely to have long treatment duration. **CONCLUSION:** In this study pre-treatment maxillary crowding, having deciduous teeth, overbite, and extractions were independently and inversely associated with short and long treatment duration. Clinicians can consider these factors when estimating treatment duration.

Introduction

There has been an extensive amount of research performed on the factors that affect orthodontic treatment duration, yet many clinicians use the same estimate for active treatment duration for all full treatment cases. As we embrace the modern era of evidence based treatment, orthodontists should be

interested in developing a better understanding of the factors affecting treatment duration. The most common question that a prospective orthodontic patient is likely to ask the orthodontist is "how long will I have to wear my braces?" The orthodontist is likely to give the patient an estimation based on previous experiences and clinical judgment. Many times the orthodontist is asked to make this *estimation* during the initial exam, without the aid of a full set of records. The orthodontist may also underestimate the treatment length in an attempt to please the patient. Some orthodontists base the treatment fee on the length of time they believe it will take to complete the case. Assuming a fixed fee schedule, poor treatment estimates impact profitability.

In a survey conducted by an orthodontist in private practice, "true and accurate timing estimates" were second only to a reduction in treatment fees when 146 consecutively treated patients were questioned.[1] Past research investigated such variables as: extractions, PAR score, oral hygiene during treatment, phases of treatment, prescribing headgear, sex, age, midline, type of appliances, crowding, several cephalometric values, number of broken appointments, number of broken

appliances, and appointment attendance. These studies developed linear models that explained up to 40% of the variation in treatment duration.[2-9] However, these studies relied on variables such as the number of missed appointments or the frequency of broken appliances that can only be known after treatment. Multiple linear regression modeling of pretreatment variables found that 43% of the variation was explained by forty-nine variables studied.[5] Up to this point in time, the best scientific findings based on multiple linear regression models have left approximately 60% of the variation in duration unexplained.

There are five categories of pretreatment factors that might influence treatment duration: treatment plan decisions, socio-demographic, behavioral, anatomic, and practice factors. Behavioral factors are often overlooked when attempting to determine treatment duration. While many studies assess patient cooperation once treatment has been completed, certain pretreatment behavioral characteristics may be useful as proxy measures for cooperation. Some studies have reported that chronologic age was not associated with treatment,[2,4,8] while conflicting results have been

reported by others. [5,6,7] Several studies have found that patients with good oral hygiene were more likely to cooperate with other aspects of treatment.[3,4]

Extractions of permanent teeth usually increases treatment time by an average of three months.[1] However, studies assessing extraction of teeth using patients from multiple clinicians reported no difference between treatment duration in extraction and non-extraction cases.[3,9]

To the best of the authors knowledge, all previous studies examining treatment duration utilized multiple linear regression modeling in an attempt to explain the variation in the duration of orthodontic treatment. Hence, the present study is the first report utilizing multiple logistic regression modeling to identify specific pre-treatment characteristics associated with either short (less than or equal to 20 months) or long (greater than or equal to 30 months) treatment duration.

Materials and Methods

Study Population

The study was a case-control study involving orthodontic patients treated in the graduate orthodontic clinic at Case Western Reserve University. Pretreatment

patient records were examined on all consecutively debonded patients during 2003 and 2004. Patients were selected from the 2005 graduating residents alphabetically by the residents name until a total of 400 subjects were included in the study. All subjects had pre-PAR and post-PAR scores performed by a single outside examiner. All patients were between the ages of 9 years, 3 months and 18 years, 2 months of age at the start of treatment. The patients or legal guardians signed a consent form allowing the use of their orthodontic records for research. Individual characteristics and treatment plan variables were obtained from the patient's radiographs, study models, photographs, and medical and dental history forms.

Main Outcome

The treatment duration was measured in months from the date of bonding or cementation to the date of debonding. The two main outcomes were short treatment (STx) duration and long treatment (LTx) duration. STx duration was dichotomized as 20 months or less treatment duration; versus not STx duration, defined as more than 20 months. LTx duration was defined as 30 months and

longer duration, and not LTx duration, defined as less than 30 months

Potential Explanatory Variables

Data were collected on 61 potential explanatory variables describing the type of planned treatment (extraction, expansion appliance, headgear, type of retainer); socio-demographic variables (age, puberty, race/ethnicity, gender, parent's marital status and occupation, insurance); behavioral factors (grades, family's previous orthodontic experience, siblings' number of missed appointment and early debond due to lack of compliance or poor oral hygiene, habits, caries experience, initial oral hygiene status); dental variables (deciduous teeth, congenitally missing teeth, impacted teeth, overjet, overbite, arch form, crowding, crossbite, midline discrepancy, pre-PAR score); skeletal and soft tissue factors (lip competency, lower anterior facial height, profile, facial plane angle, Y-axis angle, occlusal plane angle, interincisal angle, lower incisor to occlusal plane angle, upper incisor to AP plane angle, SNA, SNB, ANB, upper incisor to FH angle, FH-NA angle, IMPA, FMIA, upper incisor to NA angle, lower incisor to NB angle); and practice factors (treating resident,

attending instructor, type of appliance). Most of these potential explanatory factors have been investigated in previous studies on orthodontic treatment duration.[2-14] Next, we will provide additional details on the statistically significant explanatory variables.

Type of planned treatment. The number of extractions were recorded as the discrete number and recoded as a dichotomous measure (yes/no). Use of an expansion appliance or headgear was recoded as yes/no.

Socio-demographic factors. Whether the patients had reached puberty at the start of treatment (yes/no).

Behavioral Factors. The patient's school grades were collected as A, B, C, or D, and were dichotomized as good grades (A or B) versus poor grades (C or D). Collected from color, intraoral photographs was the patient's initial oral hygiene status. The oral hygiene status was determined using Ramfjord's Simplified Oral Hygiene Index.[15] After standardization, oral hygiene was recoded as good oral hygiene having a score of 1 or less and poor oral hygiene having a score of 2 or 3. Also collected from intraoral photographs were the discrete number of restorations on permanent teeth, recoded as yes/no.

Dental Factors. The presence of deciduous teeth was recoded as yes/no. The discrete number of congenitally missing teeth and impacted teeth were recoded as yes/no. Overjet was collected from the clinical exam sheet and recoded as severe (including 5mm or more of overjet and end-to-end or negative overjet) and not severe (0mm-4mm overjet). Overbite was collected from the clinical exam form and recoded as severe (80-100%) and not severe (0%-79%). Maxillary and mandibular crowding were collected from the study models and recoded as severe (more than 6 mm), and not severe (0mm-6 mm). The pre-PAR scores were scored by a single outside examiner and were collected as discrete numbers which were recoded as typical (0-21), and severe (22 and above).

Skeletal and Soft Tissue Factors. Lower anterior facial height was collected from the clinical exam form and recorded as normal, increased, or decreased. The patient's profile was collected from the clinical exam form and recorded as straight, concave, or convex. All cephalometric variables were taken from the initial cephalometric analysis, recorded as discrete numbers and recoded as follows: Facial plane was recoded as normal

(82° - 95°), increased(> 95°), and decreased(< 82°). SNB was recorded as normal (77 - 83°), increased(> 83°), decreased (< 77°). Upper incisor to FH was recoded as normal(105-115°), increased(> 115°), or decreased(< 105°). Upper incisor to NA was recoded as normal(20-24°), increased(> 24°), or decreased(< 20°). Lower incisor to NB was recoded as normal(22-28°), increased(> 28°), or decreased(< 22°).

Statistical Analyses:

The hypothesis that one or more pre-treatment variable(s) is associated with STx duration or LTx duration was tested by univariable (unadjusted) and multivariable logistic regression modeling. The association between patient characteristics and treatment duration was quantified by reporting the unadjusted odds ratios (OR_{Crude}) and adjusted odds ratios (OR_{Adj}). Statistical significance was determined at p-value <0.05 by reporting the 95% confidence interval (CI). Analyses were conducted with SAS version 9.1.

Results

The study population was comprised of 400 patients, 245 of which were female (61%) with a mean treatment duration of 25.3 months (standard deviation (s.d.) ± 8.3 months); average age at the beginning of treatment was 13 years, 6 months (s.d. ± 18.9 months). The mean pre-treatment PAR score was 22.5 (s.d. ± 8.78), and 68% of the patients were treated nonextraction.

Tables I and III depict the descriptive summary, and unadjusted association between the treatment duration and potential explanatory variables, quantified as OR_{Crude}; 95%CI. The multivariable logistic regression model for short treatment duration reported in table II, and for long treatment duration found in table IV depicts the OR_{Adj} and 95% CI. That is, the multivariable logistic regression models quantify the association between the explanatory variables and treatment duration, after simultaneously taking into account the other listed variables.

SHORT TREATMENT DURATION

Among all 400 subjects, patients who did not have severe maxillary crowding (OR_{crude} = 4.6) or severe

mandibular crowding (OR_{crude} = 3.5) were nearly 5 times and 3½ times more likely to have STx duration than patients with severe maxillary and mandibular crowding, respectively (table I). Patients who did not have extractions, were 3 times more likely (OR_{crude} = 3.1) to have STx duration than those who had extractions. Similarly, patients who did not have deciduous teeth (OR_{crude} = 2.9), had good oral hygiene (OR_{crude} = 2.9), did not have severe overbites (OR_{crude} = 2.5), had typical pre-PAR scores (OR_{crude} = 2.5), with normally positioned maxillary incisors (U1-FH OR_{crude} = 2.7, and 1-NA OR_{crude} = 2.4) were 2 to 3 times more likely to have STx duration than patients with deciduous teeth, poor oral hygiene, severe overbite, severe pre-PAR scores, and maxillary incisors that were not normally positioned.

The multivariable logistic regression model in table II depicts the independent association, simultaneously taking into account all of the listed characteristics. That is, when the other listed characteristics are equal, patients with less than 6mm of maxillary crowding (OR_{Adj} = 3.6), good oral hygiene (OR_{Adj} = 3.2), no deciduous teeth (OR_{Adj} =3.0), less than 80% overbite (OR_{Adj} = 2.4), and

non-extraction treatment (OR_{Adj} = 2.3) were 2 to 3½ times more likely to have STx duration.

LONG TREATMENT DURATION

Among the 400 subjects, those patients who had deciduous teeth (OR_{crude} = 2.0), severe overbite (OR_{crude} = 2.4), severe overjet (OR_{crude} = 2.2), decreased SNB (OR_{crude} = 1.8), decreased upper incisor to FH (OR_{crude} = 1.9), decreased upper incisor to NA (OR_{crude} = 2.1), not typical pre-PAR score (OR_{crude} = 2.1), and poor school grades (OR_{crude} = 2.2) were all approximately twice as likely to have LTx duration than patients without deciduous teeth, not severe overbite, not severe overjet, normal SNB, normally positioned maxillary incisors, typical pre-PAR score, and good school grades. Patients with severe maxillary crowding (OR_{crude} = 3.0), severe mandibular crowding (OR_{crude} = 2.6), extractions (OR_{crude} = 2.8), and decreased lower facial height (OR_{crude} = 3.4) were approximately 3 times more likely to have LTx duration than patients who did not have severe maxillary crowding or severe mandibular crowding, who were non-extraction, and had normal lower facial height.

As shown in Table IV, after simultaneously taking into account extraction, school grades, deciduous teeth, overjet, overbite, maxillary crowding, and decreased lower facial height, patients with decreased lower facial height (OR_{Adj} = 3.4), severe maxillary crowding (OR_{Adj} = 2.6), severe overjet (OR_{Adj} = 2.3), severe overbite (OR_{Adj} = 2.0), poor school grades (OR_{Adj} = 2.0), deciduous teeth present (OR_{Adj} = 1.9), and extractions (OR_{Adj} = 1.8) were more likely to have LTx duration.

Discussion

Accurately determining the duration of treatment is not only advantageous to the patient, but also to the orthodontist. If an orthodontist tells patients that treatment will last 24 months they will be wrong half of the time even if the true median treatment time in their office is 24 months. And, if the median is even slightly greater than 24 months they will be wrong most of the time! Therefore, the ability to identify those cases that are likely to be at the extremes (short or long) would be beneficial to the orthodontist.

To the best of the authors' knowledge, our study is the first study to date that utilized logistic regression

to establish associations between pre-treatment variables and treatment duration. Past studies involving treatment duration have all used linear regression to try and explain what percentage of the variation in treatment duration can be explained by a group of variables. Although odds ratios are seldom reported in current orthodontic literature, it is thought that reporting odds ratios is more clinically applicable to a practicing orthodontist.[16]

Our study examined patients' oral hygiene before treatment, while previous studies investigated oral hygiene during treatment.[3,4] Any characteristics during treatment can not predict treatment duration because they occur during treatment rather than prior to treatment. Thus, it is beneficial to determine the patient's oral hygiene prior to the placement of appliances. Using multiple regression modeling, so that all the other characteristics were constant or equal, we found those patients that had good oral hygiene were over 3 times more likely to have short treatment duration, perhaps such patients cooperate better during treatment leading to better elastic wear and fewer broken appliances.

Many orthodontists evaluate the position of the lower incisors as an indicator of treatment difficulty. Often times a clinician will evaluate the lower arch and angulation of the incisors to determine if extractions are necessary. One study in particular examined only cephalometric variables and found that the position of the lower incisors was one of only two significant variables when determining treatment duration.[10] While we did not find lower incisor position to be related to treatment duration, there was a tendency for those who did not have normally positioned lower incisors to be less likely to have short treatment duration. Lower incisor position was not related to treatment duration when the significant characteristics were taken into account in the multivariable model.

While no previous studies evaluated the role of caries experience in treatment duration we thought it could be a proxy measure for future cooperation. Surprisingly, we found that the presence of restorations on permanent teeth was linked to shorter treatment duration in the unadjusted regression model. However, when the other characteristics related to treatment duration were taken into account, the presence of

restorations on permanent teeth was no longer significant. In other words, the unadjusted finding that restorations on permanent teeth were related to STx duration could be explained by confounding due to maxillary crowding, oral hygiene, deciduous teeth, overbite and non-extractions. This finding supports the rationale for performing multiple regression approaches, such as linear and logistic regression. That is, while a correlation or association may be found using unadjusted analyses, this finding may be due to confounding which can be addressed in the study design by matching, or in the analytical approach by stratified analyses or using multiple regression models.[17] We would also like to point out that caries was not found to be associated with treatment duration in our study. This could be due to type II or beta-error and the lack of power to detect a significant difference due to the few number of patients with obvious caries.

We recognize our unadjusted finding that permanent restorations were related to STx duration may also be due to type I or alpha error and that this result may be a spurious finding because of the number of variables tested. The 61 variables we investigated were found in

previous publications, the few that were not previously studies were race/ethnicity, parent's occupation, insurance, sibling appointment history, caries experience, oral hygiene, and archform coordination. We investigated these additional variables because we hypothesized they may be proxy measures for cooperation, and that archforms that were not coordinated may take longer to treat.

Additional research is needed to investigate the potential role of oral hygiene and caries experience (both obvious caries and restorations) in treatment duration, to substantiate or refute our finding. We interpret this unanticipated finding with caution because it did not remain significant when the other characteristics were taken into account.

Only one other study reported lower facial height as an indicator of treatment duration.[5] In our study, decreased lower facial height was associated with a longer treatment duration, even after holding the other characteristics constant or equal. While patients with decreased lower facial height usually have a deep bite possibly requiring additional treatment time to level the curve of spee, this was taken into account in the

multivariable model. Thus, lower facial height was independently associated with LTx duration.

Similarly, overjet has not been mentioned as a significant factor in treatment duration. Clinicians would probably agree that the more severe the overjet, the longer the case may take to treat. Also, patients that have a severe overjet may be more likely to be treated with extractions. Thus our multivariable modeling is most relevant, because these characteristics were significant even after simultaneously taking into account the other characteristics in the model.

In a careful review of the literature, only one study collected data concerning a patient's school grades and treatment duration.[5] While we found good grades were not associated with STx duration, poor grades were linked to LTx duration. Patient's grades may be an indicator of willingness to cooperate or follow instructions, both of which are critical in successful orthodontics. However, the characteristics that were only in one of the two multivariable models were not consistent characteristics associated with treatment duration. Thus, we strongly suggest additional research is needed to see if these

results are found or refuted in studies of other populations.

We would like to focus on four characteristics that were consistently significant in both the short and long treatment duration multivariable models: extractions, crowding, overbite and deciduous teeth. Because these variables appear in both models, but with an inverse association they may be the most important factors to consider when evaluating treatment duration. That is, when considering the five criteria for causality, four were met by these four characteristics, namely, consistency of association, strength of association, temporal association, and plausibility,[18] Thus, these four factors are most relevant.

To further discuss plausibility, there are two main reasons an orthodontist would consider extracting teeth. Either to eliminate crowding, or to reduce the proclination of the incisors. Most orthodontists would agree that extracting teeth tends to increase treatment duration.[2,4,5,11,12] The clinician has to allow for additional time to accomplish space closure, establish archform, and parallel roots adjacent to extraction sites. Similarly, when a case can be treated non-

extraction these issues are less of a concern, and the case is more likely to have a shorter treatment duration. Patients that have severe crowding may be more likely to have extractions, in either situation, they are likely to have longer treatment. We report herein that the role of extractions and crowding is independently and inversely associated with short and long treatment duration.

Overbite was another factor that was present in both models. Greater than 80% overbite was associated with longer treatment duration. Often a deep vertical overbite coincides with a decreased lower anterior facial height which was also linked to LTx duration. One possible explanation for this is that in deep bite cases it may not be possible to bond the lower arch at the start of treatment. The deep overbite may need to be corrected prior to placing appliances on the mandibular teeth. Often times in deep bite situations the maxillary incisors are retroclined, as is the case of class II division 2 patients. Establishing proper torque and incisor position requires additional treatment time.

Though few studies have mentioned deciduous teeth as a possible indicator of treatment duration,[7] it is clear that starting treatment while primary teeth are present

will increase treatment time. Similarly, studies have shown that age is negatively correlated with treatment duration.[6,14] As a child matures, the likelihood of having deciduous teeth present decreases, however, in our study it appears that age is not the critical factor, rather the presence or absence of deciduous teeth seems to be more significant. Past research has found that treatment duration decreases as age increase.[6]

Similar to previous studies, we found that the average length of treatment was 25.3 months ± 8 months.[4,5,19] The mean pre-PAR score for our sample was 22.5 +- 4 indicating that the patients were similar to those found in a typical suburban orthodontic practice.[8,13] In our study 32% of the patients were treated with extractions which might be slightly higher than the extraction percentages reported in typical private practices.

The pre-PAR scores were included in the unadjusted statistical analysis, and as expected, higher pre-PAR scores were associated with LTx duration, while lower pre-PAR scores were linked to STx.[5,11-13] The pre-PAR score was not considered for our multivariable models for two main reasons: 1) a private practicing orthodontist is

unlikely to PAR score a case prior to an initial exam, and 2) the PAR score is a composite measure, so it does not allow for the identification of the role of the individual components in the treatment duration. Thus, we assessed the specific characteristics.

One of the most common limitations referred to in a study of this nature, is the variability in time spent detailing and finishing a case. Additionally, the appropriateness of the original diagnosis and treatment plan may play a role in treatment duration.

We believe the strengths of our study far outweighs this limitation because we report in clinically relevant terms, the odds of a patient to have short or long treatment duration based on the presence or absence of pre-treatment characteristics. In addition, the beta coefficients in the multiple logistic regression models can be used to estimate an individual patient's probability of having short or long treatment duration. For example, applying the multivariable model in our study the estimated proportion of STx duration ranged from 0.5% to 50% depending on the multiple characteristics. Likewise, the estimated proportion of LTx duration ranged from 6% to 91%, such that 91% of

patients with decreased lower facial height, severe maxillary crowding, severe overbite and overjet, deciduous teeth, poor school grades and treatment planned to have extractions had LTx duration.

Conclusions

Orthodontic treatment duration depends on a number of factors, some related to the orthodontist, such as when to start, and whether or not to extract, while others are related to patient behavior, such as grades and oral hygiene. Based on this study of 400 patients from the graduate orthodontic clinic at Case Western Reserve University, the following can be concluded:

1. After simultaneously adjusting for the other explanatory characteristics listed, the predictors of short treatment duration include: less than 6mm of maxillary crowding, good oral hygiene, absence of deciduous teeth, less than 80% overbite, and non-extraction treatment.
2. After simultaneously adjusting for the other explanatory characteristics listed, the predictors of long treatment duration include: decreased lower facial height, maxillary crowding of 6mm or more,

severe overjet, greater than 80% overbite, poor school grades, deciduous teeth present, and extraction treatment.

3. Presence or absence of severe maxillary crowding, deciduous teeth, 80% overbite, and extractions were consistently and inversely independent predictors of STx and LTx duration.

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Table I. Descriptive Summary and Association Between Explanatory Variables and SHORT Treatment Duration

Explanatory Variables	SHORT N= 114 29%		Not SHORT N=286 71%		OR_{crude}	95% CI
Extraction						
Yes	19	14.8%	109	85.2%	1.00	
No	95	34.9%	177	65.1%	3.08	1.78-5.32*
RPE						
Yes	24	23.3%	79	76.7%	1.00	
No	90	30.3%	207	69.7%	1.43	0.85-2.41
Reached Puberty						
Yes	75	31.8%	161	68.2%	1.00	
No	36	23.8%	115	76.2%	0.67	0.42-1.07
School Grades						
Excellent A/B	102	30.8%	229	69.2%	1.78	
Poor C/D	12	20.0%	48	80.0%	1.00	0.91-3.50
Permanent teeth w/ restorations	43	35.8%	77	64.2%	1.64	1.04-2.60*
Yes	71	25.4%	209	74.6%	1.00	
No						
Deciduous Teeth Present						
Yes	12	14.1%	73	85.9%	1.00	
No	102	32.4%	213	67.6%	2.91	1.51-5.61*
Oral Hygiene						
Good	108	30.5%	246	69.5%	2.913	1.21-7.11*
Poor	6	13.0%	40	87.0%	1.00	
Impacted Teeth						
Yes	7	17.5%	33	82.5%	1.000	
No	107	29.7%	253	70.3%	1.994	0.855-4.65
Congenitally missing teeth						
Yes	5	17.2%	24	82.8%	1.000	
No	109	29.4%	262	70.6%	1.997	0.74-5.37
Overjet						
Negative or severe >5mm	40	25.8%	115	74.2%	1.00	
Not Severe 0-4mm	74	30.2%	171	69.8%	1.244	0.79-1.95
Overbite						
Severe 80-100%	16	16.2%	83	83.8%	1.00	
Not Severe 0-79%	97	32.4%	202	67.6%	2.49	1.38-4.48*
Maxillary Crowding						
Severe 6+mm	9	10.0%	81	90.0%	1.00	
Not Severe 0-5mm	105	33.9%	205	66.1%	4.61	2.23-9.54*

Mandibular Crowding						
Severe 6+mm	13	12.8%	89	87.2%	1.00	
Not Severe 0-5mm	101	33.9%	197	66.1%	3.51	1.87-6.59*
Pre-PAR Score						
Typical 0-21	74	37.8%	122	62.2%	2.49	1.59-3.90*
Severe 22+	40	19.6%	164	80.4%	1.00	
Profile						
Concave	5	31.2%	11	68.8%	1.34	0.45-3.98
Straight	38	36.5%	66	63.5%	1.70	1.05-2.74*
Convex	71	25.4%	209	74.6%	1.00	
Facial Plane						
Normal 74-86°	34	23.6%	110	76.4%	1.00	
Increased 86+°	80	31.5%	174	68.5%	1.49	0.93-2.37
Decreased < 74°	0	0.0%	2	100.0%	NE	NE
Lower Facial Height						
Normal	78	32.6%	161	67.4%	1.76	0.86-3.62
Increased	25	22.7%	85	77.3%	1.07	0.48-2.39
Decreased	11	21.6%	40	78.4%	1.00	
SNB						
Normal 76-80°	62	30.5%	141	69.5%	1.00	
Increased 80+°	26	28.3%	66	71.7%	0.90	0.52-1.54
Decreased < 76°	26	24.8%	79	75.2%	0.75	0.44-1.28
U1 – FH						
Normal 105-115°	56	30.6%	127	69.4%	2.65	1.18-5.96*
Increased 115°+	50	31.1%	111	68.9%	2.70	1.19-6.13*
Decreased <105°	8	14.3%	48	85.7%	1.00	
U1 – NA						
Normal 3-6mm	74	33.9%	144	66.1%	2.38	1.17-4.84*
Increased >6mm	29	24.2%	91	75.8%	1.48	0.68-3.20
Decreased <3mm	11	17.7%	51	82.3%	1.00	
L1 – NB						
Normal 3-5	62	33.7%	122	66.3%	1.00	
Increased >6	41	25.0%	123	75.0%	0.66	0.41-1.05
Decreased < 3	11	21.2%	41	78.8%	0.53	0.25-1.10

*p-value < 0.05

NE - not estimable due to zero cell

Table II. Multivariable Model for Association between SHORT Treatment Duration and the explanatory variables

Explanatory Variables	OR_{adj} (95% CI)
Less than 6mm of Maxillary Crowding	3.57 (1.66 - 7.67)*
Good Oral Hygiene*	3.21 (1.27 - 8.13)*
No Deciduous Teeth	2.99 (1.50 - 5.94)*
Less than 80% Overbite	2.37 (1.27 - 4.42)*
Non-Extraction Treatment	2.31 (1.28 - 4.15)*

*p-value < 0.05

Table III. Descriptive Summary and Unadjusted Association Between Explanatory Variables and LONG Treatment Duration

Explanatory Variables	LONG N=106 26%		Not LONG N=294 74%		OR_{crude}	95% CI
Extraction						
Yes	52	40.6%	76	59.4%	2.76	1.74 - 4.38*
No	54	19.8%	218	80.2%	1.00	
RPE						
Yes	27	26.2%	76	73.8%	1.00	
No	79	26.6%	218	73.4%	1.02	0.61 - 1.70
Reached Puberty						
Yes	59	25.0%	177	75.0%	1.00	
No	43	28.5%	108	71.5%	1.19	0.75 - 1.90
School Grades						
Excellent A/B	78	23.6%	253	76.4%	1.00	
Poor C/D	24	40.0%	36	60.0%	2.16	1.22 - 3.85*
Permanent teeth w/restorations						
Yes	29	24.2%	91	75.8%	0.84	0.51 - 1.38
No	77	27.5%	203	72.5%	1.00	
Deciduous Teeth Present						
Yes	32	37.7%	53	62.4%	1.97	1.18 - 3.28*
No	74	23.5%	241	76.5%	1.00	
Oral Hygiene						
Good	93	26.3%	261	73.7%	0.91	0.46 - 1.79
Poor	13	28.3%	33	71.7%	1.00	
Impacted Teeth						
Yes	12	30.0%	28	70.0%	1.00	
No	94	26.1%	266	73.9%	0.83	0.40 - 1.69
Congenitally missing teeth						
Yes	10	34.5%	19	65.5%	1.00	
No	96	25.9%	275	74.1%	0.66	0.30 - 1.48
Overjet						
Negative or severe >5mm	56	36.1%	99	63.9%	2.21	1.40- 3.47*
Not Severe 0-4mm	50	20.4%	195	79.6%	1.00	
Overbite						
Severe 80-100%	40	40.4%	59	59.6%	2.44	1.50 - 3.97*
Not Severe 0-79%	65	21.7%	234	78.3%	1.00	
Maxillary Crowding						
Severe 6+mm	40	44.4%	50	55.6%	2.96	1.80 - 4.86*
Not Severe 0-5mm	66	21.3%	244	78.7%	1.00	

Mandibular Crowding						
Severe 6+mm	42	41.2%	60	58.8%	2.56	1.58- 4.14*
Not Severe 0-5mm	64	21.5%	234	78.5%	1.00	
Pre-PAR Score						
Typical 0-21	38	19.4%	158	80.6%	1.00	
Not Typical 22+	68	33.3%	136	66.7%	2.08	1.31 - 3.29*
Profile						
Concave	5	31.3%	11	68.8%	1.12	0.38 - 3.32
Straight	20	19.2%	84	80.8%	0.59	0.34 - 1.02
Convex	81	28.9%	199	71.1%	1.00	
Facial Plane						
Normal 74-86°	45	31.3%	99	68.8%	1.00	
Increased 86+°	61	24.0%	193	76.0%	0.70	0.44 - 1.10
Decreased < 74°	0	0.0%	2	100.0%	NE	--
Lower Facial Height						
Normal	49	20.5%	190	79.5%	1.00	
Increased	33	30.0%	77	70.0%	1.66	0.99 - 2.78
Decreased	24	47.1%	27	52.9%	3.45	1.83 - 6.49*
SNB						
Normal 76-80°	48	23.7%	155	76.4%	1.00	
Increased 80+°	20	21.7%	72	78.3%	0.90	0.50 - 1.62
Decreased < 76°	38	36.2%	67	63.8%	1.83	1.10 - 3.06*
U1 – FH						
Normal 105-115°	46	25.1%	137	74.9%	1.00	
Increased 115°	38	23.6%	123	76.4%	0.92	0.56 - 1.51
Decreased <105°	22	39.3%	34	60.7%	1.93	1.03 - 3.63*
U1 – NA						
Normal 3-6mm	45	20.6%	173	79.4%	1.00	
Increased >6mm	39	32.5%	81	67.5%	1.19	1.12 - 3.06*
Decreased <3	22	35.5%	40	64.5%	2.11	1.14 - 3.91*
L1 – NB(mm)						
Normal 3-6	46	25.0%	138	75.0%	1.00	
Increased >6	44	26.8%	120	73.2%	1.10	0.68 - 1.78
Decreased < 3	16	30.8%	36	69.2%	1.33	0.68 - 2.62

*p-value < 0.05

NE - not estimable due to zero cell

Table IV. Multivariable Model for Association between LONG Treatment Duration and the explanatory variables

Explanatory Variables	OR_{adj}	(95% CI)
Decreased Lower Facial Height	3.42	(1.64 - 7.12)*
Maxillary Crowding of 6mm or more	2.58	(1.44 - 4.63)*
Severe Overjet[†]	2.28	(1.35 - 3.84)*
Greater than 80% Overbite	2.04	(1.16 - 3.60)*
C or D level School Grades	2.01	(1.06 – 3.83)*
Deciduous Teeth Present	1.87	(1.03 - 3.38)*
Extraction Treatment	1.84	(1.06 - 3.19)*

*p-value < 0.05

[†]Severe overjet is considered end-end and negative anterior relationship or greater than 5 mm.

TABLE 1.-- Descriptive Summary and Association Between Treatment Plan Variables and SHORT Treatment Duration

Explanatory Variables	SHORT N = 114 29%		Not SHORT N = 286 71%		OR	95% CI	P Value
Extraction (n) mean 1.07 (1.67)	0.54 (1.28)		1.29 (1.76)				< 0.0001*
Yes (1)	19	14.8%	109	85.2%	1.000		
No (2)	95	34.9%	177	65.1%	3.079	1.781-5.322*	
Ext 4 BI							
Yes (1)	12	13.5%	77	86.5%	1.000		
No (2)	95	34.9%	177	65.1%	3.444	1.785-6.645*	
Ext 2 BI							
Yes (1)	4	14.3%	24	85.7%	1.000		
No (2)	95	34.9%	177	65.1%	3.220	1.085-9.552*	
Ext 4 BI vs 2 BI							
4 BI (1)	12	13.5%	77	86.5%	1.000		
2 BI (2)	4	14.3%	24	85.7%	1.069	0.315-3.625	
RPE							
Yes (1)	24	23.3%	79	76.7%	1.000		
No (2)	90	30.3%	207	69.7%	1.431	0.851-2.406	
Headgear							
Yes (1)	4	19.1%	17	80.9%	0.575	0.189-1.749	
No (0)	110	29.0%	269	71.0%	1.000		

TABLE 2.-- Descriptive Summary and Association Between Socio-Demographic Variables and Short Treatment Duration

Explanatory Variables	SHORT N = 114 29%		Not SHORT N = 285 71%		OR	95% CI	P value
Age at start: mean 163.4 (18.9)	164.8 (18.8)		162.8 (18.9)				0.3443
Young 6-12 (1)	15	24.2%	47	75.8%	0.770	0.412-1.442	
Old 13+ (2)	99	29.3%	239	70.7%	1.000		
Reached Puberty							
Yes (1)	75	31.8%	161	68.2%	1.000		
No (0)	36	23.8%	115	76.2%	0.672	0.423-1.069	
Race							
NHW (5)	94	29.0%	230	71.0%	1.000		
NHB (1)	14	27.5%	37	72.6%	0.926	0.478-1.792	
MA (2)	2	66.7%	1	33.3%	4.893	0.438-54.615	
Asian (3)	1	14.3%	6	85.7%	0.408	0.048-3.434	
Other (4)	3	20.0%	12	80.0%	0.169	0.169-2.217	
Minority							
Yes (1)	20	26.3%	56	73.7%	1.000		
No (0)	94	29.0%	230	71.0%	1.144	0.651-2.012	
Gender							
F (1)	74	30.2%	171	69.8%	1.000		
M (0)	40	25.8%	115	74.2%	0.804	0.512-1.262	
Parent's Marital status:							
Married (1)	79	27.8%	205	72.2%	1.000		
Single (2)	0	0.0%	1	100.0%	<0.001	<.001->999.9	
Divorced (3)	13	19.1%	55	80.9%	0.613	0.318-1.184	
Widowed (4)	4	40.0%	6	60.0%	1.730	0.475-6.294	
Married							
Yes (1)	79	27.8%	205	72.2%	1.000		
No (2)	17	21.5%	62	78.5%	0.712	0.392-1.291	
Parents' Occupation							
Blue collar (0)	34	31.5%	74	68.5%	1.204	0.738-1.964	
White collar (1)	71	27.6%	186	72.4%	1.000		
Insurance							
Private (0)	51	30.7%	115	69.3%	1.216	0.778-1.899	
Medicaid (1)	5	29.4%	12	70.6%	1.142	0.386-3.383	
None (2)	58	26.7%	159	73.3%	1.000		

TABLE 3.-- Descriptive Summary and Association Between Behavior Factors and SHORT Treatment Duration

Explanatory Variables	SHORT N = 114 29%		Not SHORT N = 285 71%		OR	95% CI	P Value
School Grades							
A (1)	48	31.4%	105	68.6%	1.371	0.139-13.526	
B (2)	54	30.3%	124	69.7%	1.306	0.139-12.845	
C (3)	11	19.6%	45	80.4%	0.733	0.069-7.745	
D (4)	1	25.0%	3	75.0%	1.000		
Excellent/Good (1)	102	30.8%	229	69.2%	1.782	0.908-3.497	
Poor (2)	12	20.0%	48	80.0%	1.000		
Family w/ ortho experience							
Yes (1)	9	25.7%	26	74.3%	1.000		
No (0)	105	28.8%	260	71.2%	1.167	0.529-2.574	
# of sibling broken apts, or rescheduled apts. (mean)7.46 (3.92)	8.44 (3.36)		7.12 (4.10)				0.3888
less than 6 (0)	1	11.1%	8	88.9%	1.000		
greater than or equal to 6 (1)	8	30.8%	18	69.2%	3.555	0.379-33.370	
Sibling early removal of appliances							
Yes (1)	0	0.0%	2	100.0%	<0.001	<.001>999.9	
No (0)	9	30.0%	21	70.0%	1.000		
Habits							
Mouth breathing	0	0.0%	1	100.0%	<0.001	<.001-	
Yes (1)	114	28.6%	285	71.4%	1.000	>999.9	
No (0)							
Digit	10	40.0%	15	60.0%	1.000		
Yes (1)	104	27.7%	271	72.3%	0.576		
No (0)						0.251-1.322	
Tongue thrust	3	30.0%	7	70.0%	1.000		
Yes (1)	111	28.5%	279	71.5%	0.928		
No (0)						0.236-3.654	

TABLE 3.-- Descriptive Summary and Association Between Behavior Factors and SHORT Treatment Duration (continued)

Total # of restor mean 0.86 (1.63)	1.15 (1.89)		0.75 (1.51)					0.0448*
Yes (1)	43	34.4%	82	65.6%	1.507	0.954-2.380		
No (2)	71	25.8%	204	74.2%	1.000			
Prim restor. mean 0.24 (0.61)	0.17 (0.39)		0.25 (0.64)					0.5601
Yes (1)	2	14.3%	12	85.7%	1.017	0.197-5.239		
No (2)	10	14.1%	61	85.9%	1.000			
Perm restor. mean 0.82 (1.58)	1.13 (1.87)		0.69 (1.43)					0.0243*
Yes (1)	43	35.8%	77	64.2%	1.644	1.038-2.604*		
No (2)	71	25.4%	209	74.6%	1.000			
Total # teeth w/ obvious caries mean 0.16 (0.52)	0.12 (0.42)		0.17 (0.55)					0.3127
Yes (1)	10	22.7%	34	77.3%	0.713	0.340-1.496		
No (2)	104	29.2%	252	70.8%	1.000			
Number of primary teeth with caries mean 0.11 (0.35)	0.08 (0.29)		0.11 (0.36)					0.8091
Yes (1)	1	12.5%	7	87.5%	0.857	0.096-7.662		
No (2)	11	14.3%	66	85.7%	1.000			
Number of permanent teeth with caries mean 0.14 (0.50)	0.11 (0.42)		0.15 (0.53)					0.5117
Yes (1)	9	25.0%	27	75.0%	0.822	0.374-1.808		
No (2)	105	28 9%	259	71.2%	1.000			
Deciduous teeth present								
Yes (1)	12	14.1%	73	85.9%	1.000			
No (2)	102	32.4%	213	67.6%	2.913	1.514-5.605*		
Patients Pre-ortho OH								
Good (1)	108	30.5%	246	69.5%	2.927	1.205-7.108*		
Poor (0)	6	13.0%	40	87.0%	1.000			

TABLE 4.-- Descriptive Summary and Association Between Dental Variables and SHORT Treatment Duration

Explanatory Variables	SHORT N = 114 29%		Not SHORT N = 286 71%		OR	95% CI	P value
Con. missing teeth mean 0.12 (0.49)	0 06 (0.31)		0.14 (0.54)				0.0569*
None (0)	109	29.4%	262	70.6%	2.498	0.549-11.339	
One (1)	3	20.0%	12	80.0%	1.500	0.211-10.648	
2+ (2)	2	14.3%	12	85.7%	1.000		
Yes (1)	5	17.2%	24	82.8%	1.000		
No (2)	109	29.4%	262	70.6%	1.997	0.743-5.369	
# of Impacted Teeth (n) mean 0.14 (0.49)	0.09 (0.37)		0.16 (0.53)				0.0992
None (0)	107	29.7%	253	70.3%	1.410	0.380-5.224	
One (1)	4	14.8%	23	85.2%	0.580	0.109-3.082	
2+ (2)	3	23.1%	10	76.9%	1.000		
Yes (1)	7	17.5%	33	82.5%	1.000		
No (2)	107	29.7%	253	70.3%	1.994	0.855-4.648	
Overjet mean (mm) 3.87 (2.42)	3.63 (2.04)		3.96 (2.56)				0.1770
E/E or neg (0)	5	25.0%	15	75.0%	0.770	0.270-2.197	
Severe (1) 5+mm	35	25.9%	100	74.1%	0.809	0.505-1.296	
Not severe (2) 0-4mm	74	30.2%	171	69.8%	1.000		
Overjet							
Severe (1)	40	25.8%	115	74.2%	1.000		
Not Severe (2)	74	30.2%	171	69.8%	1.244	0.792-1.954	
	43.96 (27.84		51.0(32.85)				0.0312*
Overbite mean(mm) 48.99 (31.63)	1	50.0%	1	50.0%	5.187	0.308-87.290	
	12	30.8%	27	69.2%	2.306	0.970-5.477	
e/e – open (0) < 0	47	33.1%	95	66.9%	2.566	1.354-4.863*	
Very Minimal (1) 0-9%	38	32.2%	80	67.8%	2.464	1.274-4.767*	
Minimal (2) 10-49%	16	16.2%	83	83.8%	1.000		
Moderate (3) 50-79%							
Severe (4) 80-100%							
	16	16.2%	83	83.8%	1.000		
Overbite	97	32.4%	202	67.6%	2.491	1.384-4.482*	
Severe (1)							
Not Severe (2)							
	58	32.2%	122	67.8%	1.109	0.527-2.337	
Maxillary arch form	44	24.4%	136	75.6%	0.755	0.354-1.609	
Ovoid (1)	12	30.0%	28	70.0%	1.000		
Tapered (2)							
Square (3)							
Mandibular arch form							
Ovoid (1)	65	31.6%	141	68.4%	1.332	0.723-2.454	
Tapered (2)	31	25.0%	93	75.0%	0.963	0.491-1.887	
Square (3)	18	25.7%	52	74.3%	1.000		
Arch form Coordination							
Coordinated (1)	83	28.2%	211	71.8%	0.951	0.583-1.552	
Not Coordinated (2)	31	29.3%	75	70.7%	1.000		
Maxillary crowding mean (mm) 3.47 (3.64)	2.17 (2.54)		3.99 (3.87)				<.0001*
Severe (1) 6+mm	9	10.0%	81	90.0%	1.000		
Not severe (0) 0-5mm	105	33.9%	205	66.1%	4.610	2.227-9.544*	

TABLE 4.-- Descriptive Summary and Association Between Dental Variables and SHORT Treatment Duration (continued)

Mandibular crowding mean (mm) 3.66 (3.55)	2.56 (2.61)		4.09 (3.78)			<.0001*
Severe (1) 6+mm	13	12.8%	89	87.2%	1.000	
Not severe (0) 0-5mm	101	33.9%	197	66.1%	3.510	1.870-6.586*
Presence of posterior crossbite						
Yes (1)	23	27.1%	62	72.9%	1.000	
No (0)	91	28.9%	224	71.1%	1.095	0.640-1.874
Midline Discrepency						
Yes (1)	77	30.0%	180	70.0%	1.226	0.774-1.941
No (0)	37	25.9%	106	74.1%	1.000	
Pre-PAR mean 22.46 (8.78)	19.22 (7.51)		23.75 (8.93)			<.0001*
Typical (2) 0 – 21	74	37.8%	122	62.2%	2.487	1.585-3.902*
Severe (1) 21 +	40	19.6%	164	80.4%	1.000	

TABLE 5.-- Descriptive Summary and Association Between Skeletal and Soft Tissue Factors and SHORT Treatment Duration

Explanatory Variables	SHORT N = 114 29%	Not SHORT N = 286 71%	OR	95% CI	P value
Lip Competence					
Yes (1)	80 28.8%	198 71.2%	1.000		
No (0)	34 27.9%	88 72.1%	0.956	0.596-1.535	
Lower facial height					
Normal (0)	78 32.6%	161 67.4%	1.761	0.857-3.618	
Increased (1)	25 22.7%	85 77.3%	1.069	0.479-2.386	
Decreased (2)	11 21.6%	40 78.4%	1.000		
Facial Plane mean° 87.49(4.37)	88.07 (4.05)	87.26 (4.48)			0.0926
Normal (0) 74-86°	34 23.6%	110 76.4%	1.000		
Increased (1) 86+°	80 31.5%	174 68.5%	1.487	0.933-2.373	
Decreased (2) < 74°	0 0.0%	2 100.0%	<0.001	<.001->999.9	
Pateint Profile					
Concave (0)	5 31.2%	11 68.8%	1.338	0.449-3.983	
Straight (1)	38 36.5%	66 63.5%	1.695	1.047-2.743*	
Convex (2)	71 25.4%	209 74.6%	1.000		
Y-axis mean° 59.02 (4.33)	58.37 (4.28)	59.27 (4.34)			0.0595
Normal (0) 53-66°	103 28.7%	256 71.3%	1.000		
Increased (1) 66+°	5 23.8%	16 76.2%	0.777	0.277-2.175	
Decreased (2) < 53°	6 30.0%	14 70.0%	1.065	0.398-2.848	
Occlusal plane mean°8.12(4.32)	8.23 (4.23)	8.07 (4.36)			0.7468
Normal (0) -1.5 - 14°	105 28.6%	262 71.4%	1.000		
Increased (1) 14+°	9 31.0%	20 69.0%	1.1.23	0.495-2.546	
Decreased (2) < -1.5°	0 0.0%	4 100.0%	<0.001	<.001->999.9	
I. incisal mean° 128.68 (12.37)	128.75(10.48)	128.66(13.07)			0.9437
Normal (0) 130-150°	56 30.4%	128 69.6%	1.000		
Obtuse (1) < 130°	56 28.0%	144 72.0%	0.889	0.572-1.381	
Acute (2) 150+°	2 12.5%	14 87.5%	0.327	0.072-1.485	
L1 - occlusal plane Mean 20.14 (7.53)	19.91 (6.79)	20.23 (7.81)			0.6857
Normal (0) 3.5-20°	66 31.3%	145 68.7%	1.000		
Increased (1) 20+°	48 25.7%	139 74.3%	0.759	0.489-1.176	
Decreased (2) < 3.5°	0 0.0%	2 100.0%	<0.001	<.001->999.9	
U1- AP plane mean 6.43(3.87)	6.11 (3.01)	6.56 (4.17)			0.2390
Normal (0) -1 - 5°	55 31.3%	121 68.7%	1.000		
Increased (1) 5+°	59 26.9%	160 73.1%	0.811	0.524-1.255	
Decreased (2) < -1°	0 0.0%	5 100.0%	<0.001	<.001->999.9	
SNA mean° 81.59 (3.94)	81.56 (3.60)	81.60 (4.07)			0.9208
Normal (0) 79-84°	67 28.8%	166 71.2%	1.000		
Increased (1) 84+°	20 24.4%	62 75.6%	0.799	0.448-1.425	
Decreased (2) < 79°	27 31.8%	58 68.2%	1.153	0.674-1.974	
SNB mean° 78.0 (3.87)	78.25 (3.41)	77.90 (4.03)			0.3848
Normal (0) 76-80°	62 30.5%	141 69.5%	1.000		
Increased (1) 80+°	26 28.3%	66 71.7%	0.896	0.520-1.542	
Decreased (2) < 76°	26 24.8%	79 75.2%	0.748	0.439-1.277	
ANB mean° 3.60 (2.42)	3.32 (2.40)	3.71 (2.42)			0.1412
Normal (0) 0-4°	76 31.5%	165 68.5%	1.000		
Increased (1) 4+°	33 23.2%	109 76.8%	0.657	0.409-1.057	
Decreased (2) < 0°	5 29.4%	12 70.6%	0.905	0.308-2.659	

TABLE 5.-- Descriptive Summary and Association Between Skeletal and Soft Tissue Factors and SHORT Treatment Duration (continued)

U1 – FH mean° 113.49 (8.44)	114.15 (6.71)		113.22 (9.04)				0.2618
Normal (0) 105-115°	56	30.6%	127	69.4%	2.646	1.175-5.958*	
Increased (1) 115+°	50	31.1%	111	68.9%	2.703	1.191-6.133*	
Decreased (2) < 105°	8	14.3%	48	85.7%	1.000		
FH – NA mean° 90.43 (3.80)	90.57 (3.79)		90.37 (3.81)				0.6375
Normal (0) 87-93°	75	29.2%	182	70.8%	1.000		
Increased (1) 93+°	24	29.3%	58	70.7%	1.004	0.581-1.734	
Decreased (2) < 87°	15	24.6%	46	75.4%	0.791	0.416-1.503	
FMA mean° 24.90 (5.98)	24.32 (6.11)		25.12 (5.92)				0.2285
Normal (0) 28-17°	79	29.3%	191	70.7%	1.000		
Increased (1) 28+°	25	24.0%	79	76.0%	0.765	0.455-1.288	
Decreased (2) < 17°	10	38.5%	16	61.5%	1.511	0.657-3.474	
IMPA mean° 93.47 (7.86)	93.63 (7.92)		93.41 (7.84)				0.7986
Normal (0) 88-92°	28	30.8%	63	69.2%	1.000		
Increased (1) 92+°	63	28.4%	159	71.6%	0.892	0.524-1.518	
Decreased (2) < 88°	23	26.4%	64	73.6%	0.809	0.421-1.552	
FMIA mean° 61.93 (8.22)	61.88 (7.02)		61.95 (8.67)				0.9330
Normal (0) 60-70°	61	32.1%	129	67.9%	1.000		
Increased (1) 70+°	15	25.0%	45	75.0%	0.705	0.365-1.362	
Decreased (2) < 60°	38	25.3%	112	74.7%	0.718	0.445-1.157	
U1 – NA(mm)mean 5.37 (3.14)	5.24 (2.62)		5.43 (3.32)				0.5472
Normal (0) 3-6	74	33.9%	144	66.1%	2.383	1.172-4.843*	
Increased (1) >6	29	24.2%	91	75.8%	1.478	0.681-3.204	
Decreased (2) < 3	11	17.7%	51	82.3%	1.000		
L1 – NB(mm)mean 5.40 (2.86)	5.28 (2.67)		5.44 (2.94)				0.6148
Normal (2) 3-5	62	33.7%	122	66.3%	1.000		
Increased (1) >6	41	25.0%	123	75.0%	0.656	0.411-1.047	
Decreased (0) < 3	11	21.2%	41	78.8%	0.528	0.254-1.098	

TABLE 6.-- Descriptive Summary and Association Between Practice Factor and SHORT Treatment Duration

Explanatory Variables	SHORT N=114 29%		Not SHORT N=286 71%		OR	95% CI	P value
Primary Resident							
(1)	9	37.5%	15	62.5%	0.729	0.246-2.162	
(2)	15	30.6%	34	69.4%	0.536	0.211-1.361	
(3)	8	22.9%	27	77.1%	0.360	0.125-1.038	
(4)	7	28.0%	18	72.0%	0.470	0.154-1.453	
(5)	7	15.9%	37	84.1%	0.230	0.079-0.672*	
(6)	8	16.7%	40	83.3%	0.243	0.086-0.685*	
(7)	12	24.0%	38	76.0%	0.383	0.147-1.001	
(8)	0	0.0%	8	100.0%	<0.001	<.001->999.9	
(10)	11	36.7%	19	63.3%	0.703	0.252-1.960	
(11)	16	48.5%	17	51.5%	1.143	0.428-3.054	
(12)	7	30.4%	16	69.6%	0.531	0.171-1.654	
(13)	14	45.2%	17	54.8%	1.000		
Attending Orthodontist							
(1)	7	25.0%	21	75.0%	3.333	0.360-30.891	
(2)	18	31.6%	39	68.4%	4.615	0.548-38.843	
(3)	1	50.0%	1	50.0%	10.00	0.317-315.279	
(4)	16	32.0%	34	68.0%	4.706	0.554-39.989	
(6)	13	21.0%	49	79.0%	2.653	0.311-22.654	
(7)	4	36.4%	7	63.6%	5.714	0.521-62.659	
(8)	18	34.0%	35	66.0%	5.143	0.609-43.397	
(9)	0	0.0%	2	100.0%	<0.001	<.001->999.9	
(10)	11	30.6%	25	69.4%	4.400	0.500-38.711	
(11)	17	35.4%	31	64.6%	5.484	0.646-46.565	
(12)	6	24.0%	19	76.0%	3.158	0.332-29.998	
(13)	2	13.3%	13	86.7%	1.538	0.122-19.470	
(15)	1	9.1%	10	90.9%	1.000		
Appliance SLOT SIZE							
.018" (1)	47	25.7%	136	74.3%	1.000		
.022" (0)	67	30.9%	150	69.1%	1.292	0.833-2.005	
Appliance ANGULATION							
Damon (1)	5	26.3%	14	73.7%	1.786	0.287-11.128	
Tip Edge (2)	7	26.9%	19	73.1%	1.842	0.321-10.580	
Standard Edgewise(3)	100	29.2%	243	70.9%	2.058	0.443-9.559	
Tweed (4)	2	16.7%	10	83.3%	1.000		
Standard Edgewise							
Yes (1)	100	29.2%	243	70.9%	1.000		
No (0)	14	24.6%	43	75.4%	0.791	0.414-1.510	
Tweed							
Yes (1)	2	16.7%	10	83.3%	1.000		
No (0)	112	28.9%	276	71.1%	2.029	0.438-9.408	

TABLE 7.-- Multivariable Model for Association with SHORT Treatment Duration

Explanatory Variables	**$OR_{adjusted}$**	**95% $CI_{adjusted}$**
Less than 6mm of Maxillary Crowding	4.0	(1.8 - 8.8)
Good Oral Hygiene*	3.4	(1.3 - 8.7)
No Deciduous Teeth	3.3	(1.6 - 6.6)
Less than 50% Overbite	3.0	(1.5 - 5.7)
Non-Extraction Treatment	2.3	(1.3 -4 .3)
Lower Incisor Normally Positioned**	2.0	(1.1 - 3.4)
Presence of Permanent Restorations	1.8	(1.1 - 2.9)

*Good Oral Hygiene is considered when patient does not have soft debri covering more than 1/3 of any tooth surface.

**Normally positioned lower incisors are between 3-5 mm to NB line

Example interpretation:

Patients that had less than 6mm of maxillary crowding were 4.0 times as likely to have SHORT treatment duration after simultaneously adjusting for: oral hygiene, deciduous teeth, overbite, extraction, lower incisor to NB, and presence of permanently restored teeth.

TABLE 8.-- Descriptive Summary and Association Between Treatment Plan Variables and LONG Treatment Duration

Explanatory Variables	LONG N = 106 26%		Not LONG N = 294 74%		OR	95% CI	P Value
Extraction (n) mean 1.07 (1.67)	1.73 (1.88)		0.84 (1.52)				<.0001*
Yes (1)	52	40.6%	76	59.4%	2.762	1.741-4.383*	
No (2)	54	19.8%	218	80.2%	1.000		
Ext 4 BI							
Yes (1)	40	44.9%	49	55.1%	1.000		
No (2)	54	19.9%	218	80.2%	0.303	0.182-0.507*	
Ext 2 BI							
Yes (1)	7	25.0%	21	75.0%	1.000		
No (2)	54	19.9%	218	80.2%	0.743	0.300-1.838	
Ext 4 BI vs 2 BI							
4 BI (1)	40	44.9%	49	55.1%	1.000		
2 BI (2)	7	25.0%	21	75.0%	0.408	0.158-1.058	
RPE							
Yes (1)	27	26.2%	76	73.8%	1.000		
No (2)	79	26.6%	218	73.4%	1.020	0.613-1.697	
Headgear							
Yes (1)	8	38.1%	13	61.9%	1.765	0.710-4.386	
No (0)	98	25.9%	281	74.1%	1.000		

TABLE 9.-- Descriptive Summary and Association Between Socio-Demographic Variables and LONG Treatment Duration

Explanatory Variables	LONG N = 106 26%		Not LONG N = 294 74%		OR	95% CI	P Value
Start age mean: 163.38 (18.88)	160.11(17.15)		164.56(19.35)				0.0374*
Young 6-12 (1)	17	27.4%	45	72.6%	1.057	0.575-1.942	
Old 13+ (2)	89	26.3%	249	73.7%	1.000		
Reached Puberty							
Yes (1)	59	25.0%	177	75.0%	1.000		
No (0)	43	28.5%	108	71.5%	1.194	0.754-1.892	
Race							
NHB (1)	16	31.4%	35	68.6%	1.327	0.699-2.522	
MA (2)	0	0.0%	3	100.0%	<.001	<.001->999.9	
Asian (3)	2	28.6%	5	71.4%	1.161	0.221-6.100	
Other (4)	5	33.3%	10	66.7%	0.482	0.482-4.371	
NHW (5)	83	25.6%	241	74.4%	1.000		
Minority							
Yes (1)	23	30.3%	53	69.7%	1.000		
No (0)	83	25.6%	241	74.4%	0.794	0.458-1.375	
Gender							
♀ (1)	67	27.4%	178	72.7%	1.000		
♂ (0)	39	25.2%	116	74.8%	0.893	0.565-1.413	
	77	27.1%	207	72.9%	3.348	0.417-26.864	
	0	0.0%	1	100.0%	<0.001	<.001->999.9	
Parent's Marital status:							
Married (1)	19	27.9%	49	72.1%	3.490	0.414-29.449	
Single (2)	1	10.0%	9	90.0%	1.000		
Divorced (3)							
Widowed (4)							
Married							
Yes (1)	77	27.1%	207	72.9%	1.000		
No (2)	20	25.3%	59	74.7%	0.911	0.515-1.612	
Parents' Occupation							
Blue collar (0)	26	24.1%	82	75.9%	0.831	0.494-1.396	
White collar (1)	71	27.6%	186	72.4%	1.000		
Insurance							
Private Insurance (0)	38	22.9%	128	77.1%	0.742	0.465-1.184	
Medicaid (1)	6	35.3%	11	64.7%	1.364	0.483-3.849	
No insurance (2)	62	28.6%	155	71.4%	1.000		

TABLE 10.-- Descriptive Summary and Association Between Behavior Factors and LONG Treatment Duration

Explanatory Variables	LONG N = 106 26%		Not LONG N = 294 74%		OR	95% CI	P Value
School Grades							
A (1)	34	22.2%	119	77.8%	0.286	0.039-2.104	
B (2)	44	24.7%	134	75.3%	0.328	0.045-2.401	
C (3)	22	39.3%	34	60.7%	0.647	0.085-4.937	
D (4)	2	50.0%	2	50.0%	1.000		
Excellent/Good (1)	78	23.6%	253	76.4%	1.000		
Poor (2)	24	40.0%	36	60.0%	2.162	1.216-3.845*	
Family w/ ortho experience							
Yes (1)	12	34.3%	23	65.7%	1.000		
No (0)	94	25.8%	271	74.3%	0.665	0.318-1.388	
# of sibling broken apts, or rescheduled apts. (mean)7.46 (3.92)	8.92 (4.60)		6.70 (3.38)				0.1128
less than 6 (0)	2	22.2%	7	77.8%	1.000		
greater than or equal to 6 (1)	10	38.5%	16	61.5%	2.187	0.377-12.701	
Sibling early removal of appliances							
Yes (1)	1	50.0%	1	50.0%	2.000	0.113-35.410	
No (0)	10	33.3%	20	66.7%	1.000		
Habits							
Mouth breathing							
yes (1)	0	0.0%	1	100.0%	<0.001	<.001->999.9	
No (0)	106	26.6%	293	73.4%	1.000		
Digit							
Yes (1)	6	24.0%	19	76.0%	1.000		
No (0)	100	26.7%	275	73.3%	1.152	0.447-2.965	
Tongue thrust							
Yes (1)	2	20.0%	8	80.0%	1.000		
No (0)	104	26.7%	286	73.3%	1.454	0.304-6.958	

TABLE 10.-- Descriptive Summary and Association Between Behavior Factors and LONG Treatment Duration (continued)

Total # of restor mean 0.86 (1.63)	0.72 (1.36)		0.91 (1.72)					0.2346
Yes (1)	32	25.6%	93	74.4%	0.935	0.577-1.514		
No (2)	74	26.9%	201	73.1%	1.000			
Prim restor. mean 0.24 (0.61)	0.19 (0.47)		0.26 (0.68)					0.5430
Yes (1)	5	35.7%	9	64.3%	0.905	0.274-2.987		
No (2)	27	38.0%	44	62.0%	1.000			
Perm restor. mean 0.82 (1.58)	0.67 (1.33)		0.87 (1.66)					0.2217
Yes (1)	29	24.2%	91	75.8%	0.840	0.513-1.376		
No (2)	77	27.5%	203	72.5%	1.000			
Total # teeth w/ obvious caries mean 0.16 (0.52)	0.18 (0.53)		0.15 (0.52)					0.6571
Yes (1)	13	29.5%	31	70.5%	1.186	0.595-2.363		
No (2)	93	26.1%	263	73.9%	1.000			
Number of primary teeth with caries mean 0.11 (0.35)	0.19 (0.47)		0.06 (0.23)					0.1500
Yes (1)	5	62.5%	3	37.5%	3.086	0.684-13.911		
No (2)	27	35.1%	50	64.9%	1.000			
Number of permanent teeth with caries mean 0.14 (0.50)	0.12 (0.47)		0.14 (0.51)					0.7212
Yes (1)	8	22.2%	28	77.8%	0.776	0.342-1.759		
No (2)	98	26.9%	266	73.1%	1.000			
Deciduous teeth present								
Yes (1)	32	37.7%	53	62.4%	1.966	1.180-3.275*		
No (2)	74	23.5%	241	76.5%	1.000			
Patients Pre-ortho OH								
Good (1)	93	26.3%	261	73.7%	0.905	0.456-1.793		
Poor (0)	13	28.3%	33	71.7%	1.000			

TABLE 11.-- Descriptive Summary and Association Between Dental Variables and LONG Treatment Duration

Explanatory Variables	LONG N = 106 26%	Not LONG N = 294 74%	OR	95% CI	P value
Con. missing teeth mean 0.12 (0.49)	0.18 (0.63)	0.10 (0.42)			0.2233
None (0)	96 25.9%	275 74.1%	0.465	0.157-1.375	
One (1)	4 26.7%	11 73.3%	0.485	0.102-2.303	
2+ (2)	6 42.9%	8 57.1%	1.000		
Yes (1)	10 34.5%	19 65.5%	1.000		
No (2)	96 25.9%	275 74.1%	0.663	0.298-1.476	
# of Impacted Teeth mean 0.14 (0.49)	0.18 (0.63)	0.13 (0.43)			0.4499
None (0)	94 26.1%	266 73.9%	1.178	0.317-4.372	
One (1)	9 33.3%	18 66.7%	1.667	0.365-7.607	
2+ (2)	3 23.1%	10 76.9%	1.000		
Yes (1)	12 30.0%	28 70.0%	1.000		
No (2)	94 26.1%	266 73.9%	0.825	0.403-1.687	
Overjet mean (mm) 3.87 (2.42)	4.50 (2.93)	3.64 (2.17)			0.0065*
E/E or neg (0)	8 40.0%	12 60.0%	2.600	1.009-6.703*	
Severe (1) 5+mm	48 35.6%	87 64.4%	2.152	1.345-3.442*	
Not severe (2) 0-4mm	50 20.4%	195 79.6%	1.000		
Overjet					
Severe (1)	56 36.1%	99 63.9%	2.206	1.404-3.465*	
NOT Severe (2)	50 20.4%	195 79.6%	1.000		
	55.20 (36.19)	46.76 (29.56)			0.0326*
Overbite mean(mm) 48.99 (31.63)	1 50.0%	1 50.0%	1.475	0.09-24.273	
	12 30.8%	27 69.2%	0.656	0.298-1.444	
e/e – open (0) < 0	32 22.5%	110 77.5%	0.429	0.245-0.753*	
Very Minimal (1) 0-9%	21 17.8%	97 82.2%	0.319	0.172-0.593*	
Minimal (2) 10-49%	40 40.4%	59 59.6%	1.000		
Moderate (3) 50-79%					
Severe (4) 80-100%					
	40 40.4%	59 59.6%	2.441	1.500-3.970*	
Overbite	65 21.7%	234 78.3%	1.000		
Severe (1)					
Not Severe (2)					
	41 22.8%	139 77.2%	0.688	0.322-1.473	
Maxillary arch form	53 29.4%	127 70.6%	0.974	0.461-2.058	
Ovoid (1)	12 30.0%	28 70.0%	1.000		
Tapered (2)					
Square (3)					
Mandibular arch form					
Ovoid (1)	48 23.3%	158 76.7%	0.709	0.387-1.298	
Tapered (2)	37 29.8%	87 70.2%	0.992	0.523-1.882	
Square (3)	21 30.0%	49 70.0%	1.000		
Arch form Coordination					
Coordinated (1)	77 26.2%	217 73.8%	0.942	0.571-1.553	
Not Coordinated (2)	29 27.4%	77 72.6%	1.000		
Maxillary crowding 3.47 (3.64)	4.85 (4.34)	2.98 (3.21)			<.0001*
Severe (1) 6+mm	40 44.4%	50 55.6%	2.958	1.800-4.861*	
Not severe (0) 0-5mm	66 21.3%	244 78.7%	1.000		
Mandibular crowding 3.66 (3.55)	5.20 (4.22)	3.10 (3.10)			<.0001*
Severe (1) 6+mm	42 41.2%	60 58.8%	2.559	1.581-4.143*	
Not severe (0) 0-5mm	64 21.5%	234 78.5%	1.000		

TABLE 11.-- Descriptive Summary and Association Between Dental Variables and LONG Treatment Duration (continued)

Presence of posterior crossbite					
Yes (1)	28 32.9%	57 67.1%	1.000		
No (0)	78 24.8%	237 75.2%	0.670	0.398-1.126	
Midline Discrepency					
Yes (1)	69 26.9%	188 73.1%	1.051	0.660-1.674	
No (0)	37 25.9%	106 74.1%	1.000		
Pre-PAR 22.46 (8.78)	26.59 (9.18)		20.97 (8.15)		<.0001*
Typical (2) 0 – 21	38 19.4%	158 80.6%	1.000		
Severe (1) 21 +	68 33.3%	136 66.7%	2.079	1.314-3.288*	

TABLE 12.-- Descriptive Summary and Association Between Skeletal and Soft Tissue Factors and LONG Treatment Duration

Explanatory Variables	LONG N=106 26%		Not LONG N=294 74%		OR	95% CI	P value
Lip Competence							
Yes (1)	71	25.5%	207	74.5%	1.000		
No (0)	35	28.7%	87	71.3%	1.173	0.729-1.888	
Lower facial height							
Normal (0)	49	20.5%	190	79.5%	1.000		
Increased (1)	33	30.0%	77	70.0%	1.661	0.993-2.780	
Decreased (2)	24	47.1%	27	52.9%	3.446	1.830-6.492*	
Facial Plane mean° 87.49 (4.37)	87.04 (4.36)		87.65 (4.38)				0.2173
	45	31.3%	99	68.8%	1.000		
Normal (0) 74-86°	61	24.0%	193	76.0%	0.695	0.441-1.096	
Increased (1) 86+°	0	0.0%	2	100.0%	<0.001	<.001->999.9	
Decreased (2) < 74°							
Pateint Profile							
Concave (0)	5	31.3%	11	68.8%	1.117	0.376-3.316	
Straight (1)	20	19.2%	84	80.8%	0.585	0.337-1.016	
Convex (2)	81	28.9%	199	71.1%	1.000		
Y-axis mean° 59.02 (4.33)	59.08 (4.20)		58.99 (4.39)				0.8467
	95	26.5%	264	73.5%	1.000		
Normal (0) 53-66°	6	28.6%	15	71.4%	1.112	0.419-2.948	
Increased (1) 66+°	5	25.0%	15	75.0%	0.926	0.328-2.618	
Decreased (2) < 53°							
Occlusal plane mean°8.12(4.32)	8.67 (4.69)		7.92 (4.16)				0.1246
	94	25.6%	273	74.4%	1.000		
Normal (0) -1.5 - 14°	11	37.9%	18	62.1%	1.776	0.809-3.896	
Increased (1) 14+°	1	25.0%	3	75.0%	0.968	0.099-9.420	
Decreased (2) < -1.5°							
I. incisal mean° 128.68 (12.37)	129.46 (12.84)		128.40 (12.21)				0.4498
	51	27.7%	133	72.3%	1.000		
Normal (0) 130-150°	49	24.5%	151	75.5%	0.846	0.536-1.335	
Obtuse (1) < 130°	6	37.5%	10	62.5%	1.565	0.541-4.528	
Acute (2) 150+°							
L1 -occlusal mean 20.14 (7.53)	19.10 (7.82)		20.51 (7.40)				0.0984
	59	28.0%	152	72.0%	1.000		
Normal (0) 3.5-20°	46	24.6%	141	75.4%	0.840	0.537-1.316	
Increased (1) 20+°	1	50.0%	1	50.0%	2.573	0.158-41.818	
Decreased (2) < 3.5°							
U1- AP plane mean 6.43 (3.87)	6.25 (4.24)		6.50 (3.74)				0.5675
	50	28.4%	126	71.6%	1.000		
Normal (0) -1 - 5°	54	24.7%	165	75.3%	0.825	0.526-1.292	
Increased (1) 5+°	2	40.0%	3	60.0%	1.681	0.273-10.362	
Decreased (2) < -1°							
SNA mean° 81.59 (3.94)	81.10 (4.24)		81.77 (3.82)				0.1366
	61	26.2%	172	73.8%	1.000		
Normal (0) 79-84°	19	23.2%	63	76.8%	0.850	0.471-1.535	
Increased (1) 84+°	26	30.6%	59	69.4%	1.243	0.720-2.145	
Decreased (2) < 79°							
SNB mean° 78.00 (3.87)	77.32 (4.07)		78.24 (3.77)				0.0354*
	48	23.7%	155	76.4%	1.000		
Normal (0) 76-80°	20	21.7%	72	78.3%	0.897	0.496-1.621	
Increased (1) 80+°	38	36.2%	67	63.8%	1.832	1.097-3.060*	
Decreased (2) < 76°							

TABLE 12.-- Descriptive Summary and Association Between Skeletal and Soft Tissue Factors and LONG Treatment Duration (continued)

ANB mean° 3.60 (2.42)	3.75 (2.70)		3.54 (2.31)					0.4691
Normal (0) 0-4°	57	23.7%	184	76.4%	1.000			
Increased (1) 4+°	44	31.0%	98	69.0%	1.449	0.912-2.304		
Decreased (2) < 0°	5	29.4%	12	70.6%	1.345	0.455-3.980		
U1 – FH mean° 113.49 (8.44)	112.63 (9.58)		113.79 (8.00)					0.2732
Normal (0) 105-115°	46	25.1%	137	74.9%	1.000			
Increased (1) 115+°	38	23.6%	123	76.4%	0.920	0.562-1.508		
Decreased (2) < 105°	22	39.3%	34	60.7%	1.927	1.025-3.625*		
FH – NA mean° 90.43 (3.80)	90.39 (3.25)		90.44 (3.98)					0.9073
Normal (0) 87-93°	76	29.6%	181	70.4%	1.000			
Increased (1) 93+°	16	19.5%	66	80.5%	0.577	0.314-1.061		
Decreased (2) < 87°	14	23.0%	47	77.1%	0.709	0.369-1.365		
FMA mean° 24.90 (5.98)	24.75 (5.98)		24.95 (5.98)					0.7784
Normal (0) 28-17°	76	28.2%	194	71.8%	1.000			
Increased (1) 28+°	25	24.0%	79	76.0%	0.808	0.479-1.362		
Decreased (2) < 17°	5	19.2%	21	80.8%	0.608	0.221-1.671		
IMPA mean° 93.47 (7.86)	93.43 (8.17)		93.49 (7.75)					0.9531
Normal (0) 88-92°	21	23.1%	70	76.9%	1.000			
Increased (1) 92+°	60	27.0%	162	73.0%	1.235	0.698-2.184		
Decreased (2) < 88°	25	28.7%	62	71.3%	1.344	0.385-2.635		
FMIA mean° 61.93 (8.22)	62.33 (8.78)		61.78 (8.03)					0.5563
Normal (0) 60-70°	52	27.4%	138	72.6%	1.000			
Increased (1) 70+°	17	28.3%	43	71.7%	1.049	0.550-2.001		
Decreased (2) < 60°	37	24.7%	113	75.3%	0.869	0.533-1.418		
U1 – NA(mm)mean 5.37 (3.14)	5.56 (3.71)		5.30 (2.91)					0.5098
Normal (0) 3-6	45	20.6%	173	79.4%	1.000			
Increased (1) >6	39	32.5%	81	67.5%	1.185	1.119-3.062*		
Decreased (2) < 3	22	35.5%	40	64.5%	2.114	1.143-3.911*		
L1 – NB(mm)mean 5.40 (2.86)	5.33 (3.01)		5.42 (2.81)					0.7861
Normal (0) 3-6	46	25.0%	138	75.0%	1.000			
Increased (1) >6	44	26.8%	120	73.2%	1.100	0.680-1.778		
Decreased (2) < 3	16	30.8%	36	69.2%	1.333	0.678-2.624		

TABLE 13.-- Descriptive Summary and Association Between Practice Factor and LONG Treatment Duration

Explanatory Variables	LONG N=106 26%		Not LONG N=294 74%		OR	95% CI	P value
Primary Resident							
(1)	2	8.3%	22	91.7%	0.473	0.083-2.681	
(2)	12	24.5%	37	75.5%	1.686	0.530-5.367	
(3)	8	22.9%	27	77.1%	1.541	0.446-5.326	
(4)	8	32.0%	17	68.0%	2.447	0.685-8.746	
(5)	17	38.6%	27	61.4%	3.274	1.054-10.169*	
(6)	12	25.0%	36	75.0%	1.733	0.544-5.523	
(7)	14	28.0%	36	72.0%	2.022	0.647-6.316	
(8)	5	62.5%	3	37.5%	8.667	1.549-48.490*	
(10)	8	26.7%	22	73.3%	1.891	0.540-6.622	
(11)	7	21.2%	26	78.8%	1.400	0.393-4.985	
(12)	8	34.8%	15	65.2%	2.773	0.767-10.029	
(13)	5	16.1%	26	83.9%	1.000		
Attending Orthodontist							
(1)	7	25.0%	21	75.0%	0.074	0.013-0.428*	
(2)	13	22.8%	44	77.2%	0.066	0.013-0.343*	
(3)	0	0.0%	2	100.0%	<0.001	<.001->999.9	
(4)	9	18.0%	41	82.0%	0.049	0.009-0.265*	
(6)	13	21.0%	49	79.0%	0.059	0.011-0.307*	
(7)	0	0.0%	11	100.0%	<0.001	<.001->999.9	
(8)	15	28.3%	38	71.7%	0.017	0.017-0.454*	
(9)	0	0.0%	2	100.0%	<0.001	<.001->999.9	
(10)	16	44.4%	20	55.6%	0.034	0.034-0.942*	
(11)	8	16.7%	40	83.3%	0.008	0.008-0.246*	
(12)	11	44.0%	14	56.0%	0.031	0.031-0.979*	
(13)	5	33.3%	10	66.7%	0.017	0.017-0.722*	
(15)	9	81.8%	2	18.2%			
Appliance SLOT SIZE							
.018" (1)	41	22.4%	142	77.6%	1.000		
.022" (0)	65	30.0%	152	70.0%	1.481	0.942-2.329	
Appliance ANGULATION							
Damon (1)	9	47.4%	10	52.6%	0.300	0.061-1.467	
Tip Edge (2)	7	26.9%	19	73.1%	0.123	0.026-0.589*	
Standard Edgewise (3)	81	23.6%	262	76.4%	0.103	0.027-0.390*	
Tweed (4)	9	75.0%	3	25.0%	1.000		
Standard Edgewise							
Yes (1)	81	23.6%	262	76.4%	1.000		
No (0)	25	43.9%	32	56.1%	2.527	1.416-4.511*	
Tweed							
Yes (1)	9	75.0%	3	25.0%	8.996	2.387-33.897*	
No (0)	97	25.0%	291	75.0%	1.000		

TABLE 14.-- Multivariable Model for Association with LONG Treatment Duration

Explanatory Variables		**OR$_{adjusted}$**	**95% CI$_{adjusted}$**
Decreased Lower Facial Height		3.1	(1.5 - 6.3)
Maxillary Crowding of 6mm or more		2.5	(1.4 - 4.4)
Greater than 50% Overbite		2.0	(1.2 - 3.5)
Severe Overjet*		2.0	(1.2 - 3.4)
Deciduous Teeth Present		2.0	(1.1 - 3.4)
C or D level School Grades		2.0	(1.1 – 3.9)
Extraction Treatment		2.0	(1.2 - 3.4)

*Severe overjet is considered end-end and negative anterior relationship or greater than 5 mm.

Example interpretation:

Patients that had had a decreased lower facial height were 3.1 times as likely to have LONG treatment duration after simultaneously adjusting for: maxillary crowding, overbite, overjet, deciduous teeth, school grades, and extraction treatment.

Code Book and Abreviations

Varaible Name	***Recode***	***Abreviation***
No. of Extraction	Number	EST
Headgear	Yes (1), No (0)	HG
Maxillary Retention	Hawley (1), Essix (2), SA (3), Positioner (4) Fixed (5)	MXRET
Mandibular Retention	Hawley (1), Essix (2), SA (3), Positioner (4) Fixed (5)	MDRET
RPE	Yes (1), No(0)	RPE
Age at start in months	age	START
Reached Puberty	Yes (1), No (0)	PUB
Race	NHW (0), NHB (1), MA (2), Asian (3), Other (4)	RACE
Gender	Female (1), Male (0)	SEX
Parents marital status	Married (1), Single (2), Divorced (3), Widowed (4)	MSTAT
Parents Occupation (highest)	Blue Collar (0), White Collar (1), Unemployed (2), Blank (99)	OCC
Insurance	Private (0), Medicaid (1), None (2)	INS
School Grades	A(1), B(2), C(3), D(4)	GRADES
Family w/ ortho experience @ CWRU	yes (1), No (0)	POE
No. of BA or Pt. rescheduled (sibling) apts	number	SBA
Sibling w/ early debond	yes (1), No (0)	SED
Tongue thrust habit	Yes (1), No (0)	THRUST
Digit habit	Yes (1), No (0)	DIGIT
mouth breathing	Yes (1), No (0)	BREATH
Primary Restorations	0-20 or 99 if no primary teethnumber	PRIREST
Permanent Restorations	number	PEREST
Total # of restorations	number	TREST
No. of primary teeth w/ obvious caries	0-20 or 99 if no primaey teeth	PRC
No. of permanent teeth w/ obvious caries	number	PEOC
Total number of teeth w/ obvious caries	number	TOC
Pre-ortho OH (OHI-S)	No debris (0) not more than 1/3 (1), not more than 2/3 (2), > 2/3 (3)	OHI
No. of congenitally missing teeth	number	CMT
No. of impacted teeth	number	IMPACT
Overjet	number	OJ
Overbite	percent	OB
Maxillary archform	Ovoid (1), Tapered (2), Square (3)	MXARCH
Mandibular archform	Ovoid (1), Tapered (2), Square (3)	MDARCH
Maxillary crowding	number	MXCRD

Code Book and Abreviations (continued)

Varaible Name	***Recode***	***Abreviation***
Mandibular crowding	number	MDCRD
Post. Crossbite	Yes (1), No (0)	CXB
Maxillary midline w/ face	centered (0), Left (1), Right (2)	MXMID
Mandibular midline w/ face	centered (0), Left (1), Right (2)	MDMID
Pre-Par Score	number	PAR
Lip competence	Yes (1), No (0)	LIPCOMP
Lower facial height	Normal (0), Increased (1), Decreased (2)	LFH
Profile	Concave (0), Straight (1), Convex (2)	PROFILE
Facial Plan	number	FAPLAN
Y-axis	number	YAXIS
Occlusal plan	number	OCPLAN
Interincisal angle	number	IANGLE
L1-occlusal	number	L1OCC
U1-AP	number	UIAP
SNA	number	SNA
SNB	number	SNB
ANB	number	ANB
U1-FH	number	U1FH
FH-NA	number	FHNA
FMA	number	FMA
IMPA	number	IMPACT
FMIA	number	FMIA
U1-NA	number	U1NA
L1-NB	number	L1NB
Primary Resident	1 through 9 or 99 for multiple res.	RES
Faculty	1 through 11	FAC
Slot Size	.018 (1), .022 (0)	SLOT
Angulation	Damon (1), TP (2), Std Edgewise (3)	ANGLE
TX DURATION IN MONTHS	number	TXD

Raw Data

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
1	0	0	1	1	0	134	0	0	1	1	1	2
2	0	0	1	1	0	147	99	1	0	3	99	0
3	0	0	3	3	0	153	0	0	1	1	1	2
4	4	0	1	1	1	178	1	0	0	1	1	0
6	0	0	1	1	1	165	1	0	1	1	1	0
7	0	0	2	5	1	154	1	0	0	1	0	2
8	0	0	2	2	0	161	0	0	1	1	1	2
9	4	0	1	1	0	165	1	0	0	3	1	0
10	4	0	1	1	1	175	1	0	1	3	0	2
11	0	0	2	2	0	156	99	0	1	1	1	0
12	1	0	4	4	0	161	1	1	1	1	0	2
13	0	0	1	1	1	192	1	0	0	4	1	2
14	0	0	2	2	0	170	1	0	1	1	1	2
17	2	0	2	5	0	195	1	4	1	1	99	2
18	0	0	1	1	0	140	0	0	1	4	1	2
19	4	0	1	1	0	171	1	1	0	1	1	0
20	0	0	2	5	1	164	1	0	1	1	1	2
21	0	0	2	5	0	169	1	4	0	3	1	2
22	0	0	2	2	0	153	1	0	1	1	1	0
23	0	0	1	1	1	183	1	0	0	3	1	2
24	0	0	2	2	0	165	1	0	1	3	0	2
25	0	0	2	2	0	173	1	0	1	1	1	2
27	0	0	2	2	0	139	0	0	1	4	99	2
28	1	0	4	4	0	203	1	0	1	1	1	2
29	0	0	1	1	0	170	0	0	0	4	1	2
30	0	0	2	5	1	154	0	0	0	1	0	2
31	0	0	2	5	0	155	1	0	1	1	1	2
32	0	0	2	5	1	180	1	0	1	1	1	0
33	4	0	1	1	0	131	0	0	1	3	99	2
34	0	0	2	2	1	181	1	4	1	1	0	2
36	0	0	2	2	0	144	1	0	1	1	1	2
37	0	0	1	2	0	159	0	4	1	1	1	0
38	0	0	2	2	0	157	1	0	1	4	1	2
39	0	0	2	2	0	155	1	0	1	1	1	0
41	0	1	1	1	0	151	0	0	0	3	1	2
42	0	0	2	2	0	186	1	0	1	1	1	2
43	0	0	1	1	0	156	0	0	1	1	1	2
44	0	0	2	2	0	164	0	0	1	1	1	0
45	0	1	4	5	0	156	0	0	0	1	1	0
46	0	0	4	4	0	158	1	0	0	1	1	2
47	0	0	4	4	0	144	0	0	1	99	0	0
48	0	0	2	2	0	154	0	0	1	3	1	0
49	0	0	2	2	0	156	1	4	1	1	1	0
50	4	0	4	4	0	150	0	1	1	1	1	0
51	4	0	1	1	0	162	0	0	0	1	1	1
52	4	1	4	4	0	141	0	0	1	1	1	2
54	0	0	1	1	0	146	1	0	1	1	0	0
56	4	0	1	1	0	139	1	1	1	1	1	2
58	4	1	1	1	0	167	1	0	0	1	1	1
59	4	0	4	4	0	165	1	0	1	1	1	0
60	0	1	2	2	0	162	1	0	0	1	1	0
61	4	1	1	1	0	133	0	0	0	1	1	2
62	0	0	2	2	0	157	1	0	1	1	1	2
63	2	0	1	1	1	133	0	0	1	1	0	2
64	0	0	1	1	1	145	99	0	1	1	1	0

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
65	4	0	2	2	0	160	0	1	0	3	1	2
66	0	0	3	5	0	162	0	0	0	1	1	2
67	0	0	1	1	0	156	0	0	0	1	1	0
68	0	0	2	5	1	172	1	0	1	1	0	2
69	0	0	2	5	0	191	1	0	1	1	1	1
70	0	1	1	1	0	172	1	1	1	99	99	0
71	2	0	3	5	0	188	1	3	1	1	1	0
72	0	0	2	2	0	151	99	0	1	1	1	0
73	4	0	2	5	1	163	0	0	1	1	0	0
74	0	0	2	2	0	171	1	0	0	1	1	0
75	0	0	2	2	1	178	1	0	1	3	0	2
76	0	0	2	2	1	173	1	0	1	1	1	2
77	0	0	1	3	1	159	1	0	1	1	0	2
78	0	0	2	2	0	161	0	0	0	3	1	2
79	4	0	4	4	0	179	99	0	1	99	0	2
80	0	0	2	5	0	195	1	0	0	3	1	0
81	0	0	4	4	0	174	0	1	1	1	1	2
82	0	0	2	2	1	153	0	0	1	1	1	0
83	0	0	4	4	0	136	0	0	1	1	0	0
84	0	1	1	1	0	178	99	0	1	1	1	0
85	0	0	2	2	0	168	1	0	0	4	99	2
86	1	0	2	2	0	149	1	3	1	99	1	0
87	0	0	5	5	1	176	1	0	1	3	1	2
88	4	0	4	4	0	139	99	0	1	1	0	1
89	4	0	2	2	1	148	0	0	1	1	99	2
90	0	0	4	4	0	152	1	0	1	99	0	2
91	0	0	2	3	1	142	0	0	0	1	1	2
92	0	0	2	2	0	179	1	0	0	3	99	1
93	0	0	4	4	0	164	99	0	0	1	1	1
94	2	0	2	2	0	162	1	0	0	1	1	0
95	0	0	1	1	0	187	1	0	1	1	1	2
96	0	0	2	2	1	191	1	0	1	4	0	2
97	0	0	2	2	0	150	0	2	1	1	0	2
98	0	0	1	1	0	172	1	0	1	1	0	0
99	0	0	1	1	1	148	1	0	1	99	99	2
100	0	0	4	4	0	159	1	0	1	99	1	0
101	2	1	1	1	0	190	1	0	0	3	0	0
102	4	0	2	2	0	192	1	0	1	1	1	2
103	0	0	2	2	0	164	1	0	1	1	1	0
104	0	0	1	1	1	214	1	0	0	1	0	2
105	4	0	2	2	0	214	1	3	1	99	1	0
106	0	0	2	2	0	164	1	0	0	1	0	2
107	2	0	2	2	1	138	0	0	0	1	0	0
108	2	0	1	1	0	161	1	0	0	1	1	2
109	2	0	2	2	0	150	1	0	1	1	1	0
110	2	1	1	1	0	204	1	0	1	1	1	2
111	4	1	1	1	0	193	1	0	0	1	1	2
112	0	0	1	1	0	153	1	0	1	1	1	2
113	0	0	4	4	1	187	0	0	1	1	1	2
114	4	0	1	1	0	194	1	0	0	99	1	0
115	0	0	2	2	1	151	1	0	0	1	0	2
116	4	1	4	4	0	182	1	0	1	1	1	0
117	0	0	4	4	0	189	1	0	0	99	1	2
118	3	0	1	1	0	138	1	0	1	1	0	2
119	2	0	2	2	0	146	0	0	1	1	1	0

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
120	0	0	2	2	0	143	0	0	1	3	0	2
121	0	0	4	4	1	147	0	0	0	1	1	0
122	0	0	2	5	1	149	1	0	1	1	0	2
123	4	0	2	2	0	125	0	1	1	99	1	0
124	0	0	1	2	0	168	0	1	0	1	0	1
125	0	0	3	3	0	156	1	0	1	99	1	0
126	4	1	1	1	0	149	0	0	0	1	1	2
127	3	0	2	2	1	149	0	0	1	99	0	0
128	4	0	2	2	0	168	1	0	1	3	1	2
129	0	0	2	2	0	146	1	1	0	1	1	0
130	0	0	2	2	1	165	1	0	0	1	1	0
131	4	0	2	2	0	166	1	0	0	1	1	0
132	2	0	2	5	0	176	1	0	0	1	1	2
133	0	0	1	1	0	143	1	0	1	1	1	2
134	0	0	4	4	1	187	1	0	0	1	1	0
135	4	1	3	3	0	169	1	0	1	3	1	0
136	4	0	2	5	0	163	1	1	1	3	99	2
137	0	0	2	5	0	134	1	4	1	1	1	0
138	0	0	2	2	0	182	1	0	0	1	1	0
139	0	0	2	2	0	180	1	0	1	3	1	2
140	0	0	2	2	0	176	1	0	1	99	0	2
141	0	0	2	2	0	160	0	0	0	1	1	0
142	0	0	2	2	1	146	0	1	1	1	1	0
143	0	0	2	2	1	174	1	0	0	1	99	0
144	4	0	1	5	0	166	1	0	0	1	1	0
145	0	0	3	3	1	127	1	0	1	99	0	1
146	0	0	1	1	0	170	1	0	1	1	0	0
147	0	0	2	2	0	161	0	0	0	1	1	0
148	0	0	2	2	0	133	0	0	1	1	0	0
149	0	0	1	1	0	149	1	0	0	1	0	0
150	0	0	2	2	1	133	0	0	1	1	1	2
151	0	0	2	2	0	143	0	1	1	99	99	1
152	4	0	2	5	0	146	1	1	1	99	99	1
153	0	0	2	5	0	163	0	0	0	1	1	0
154	3	0	1	1	0	179	1	0	0	1	1	2
155	0	0	1	1	0	178	1	0	0	1	0	0
156	0	0	1	1	0	195	1	0	0	1	0	0
157	0	0	2	2	0	145	0	0	1	1	1	0
158	0	1	2	2	0	167	0	1	0	99	0	0
159	2	0	2	2	0	136	0	1	0	1	99	2
160	0	0	2	2	0	141	0	0	1	99	1	0
161	4	0	4	4	0	146	0	0	0	1	0	2
162	0	0	5	5	0	122	0	1	1	99	0	2
165	4	0	2	2	0	142	0	1	0	1	0	0
166	4	0	2	2	0	163	1	1	1	1	0	0
167	4	0	2	2	0	161	0	0	0	3	1	0
168	2	0	2	5	0	185	1	0	1	99	1	2
169	2	0	4	4	0	135	0	0	1	1	1	2
170	0	0	2	2	0	197	1	0	1	1	1	0
171	0	0	4	4	0	204	1	0	1	1	0	2
172	0	0	4	4	0	167	1	1	1	3	0	1
173	4	0	2	2	0	150	0	0	0	1	0	2
174	4	0	2	2	0	163	1	2	1	1	1	0
175	0	0	1	1	0	176	1	1	0	3	99	2
176	4	0	1	1	0	171	1	1	1	1	1	2

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
177	1	0	1	1	0	184	0	1	0	99	0	2
178	0	0	2	2	0	157	0	0	1	99	1	0
179	4	0	2	2	0	148	0	1	0	1	0	1
180	0	0	2	2	0	143	0	0	1	99	1	0
181	0	0	2	2	0	170	1	0	1	1	0	2
182	0	0	2	2	0	146	1	0	0	1	1	2
183	0	0	2	2	0	139	1	1	1	1	0	2
184	4	0	2	2	1	180	1	0	1	1	1	0
185	0	0	2	2	0	153	0	0	1	1	1	2
186	2	0	4	4	0	215	1	0	1	3	0	2
187	2	0	2	2	0	165	0	0	1	99	1	0
188	0	0	1	1	1	134	0	0	1	1	1	0
189	0	0	1	1	0	154	1	0	1	1	1	2
190	0	0	2	2	0	190	1	1	1	99	1	2
191	0	0	2	2	1	167	1	0	1	1	1	2
192	0	0	1	1	0	182	1	1	1	1	0	2
193	0	0	2	2	0	149	0	1	0	99	1	2
194	0	0	2	2	0	168	0	0	1	1	99	2
195	0	0	2	2	0	176	1	0	0	1	1	2
196	0	0	1	1	0	183	1	4	1	1	1	0
197	0	0	4	4	0	164	1	0	1	1	1	2
198	0	0	1	1	0	189	1	0	1	1	0	0
199	0	0	1	1	1	156	1	0	1	1	0	2
200	0	0	2	2	1	141	1	0	1	3	0	2
201	0	0	4	4	0	147	1	0	1	1	1	2
202	0	0	2	2	0	172	1	0	0	1	1	0
203	0	0	2	2	1	152	0	4	1	1	1	2
204	4	0	2	2	0	143	1	1	0	3	1	2
205	0	0	4	4	0	172	0	0	0	99	1	2
206	0	0	2	2	0	163	1	0	0	3	99	0
207	0	0	3	3	0	180	1	0	1	1	1	0
208	4	0	2	3	1	128	0	0	0	1	1	2
209	4	0	1	1	0	137	0	1	0	99	99	2
210	0	0	2	2	0	190	1	0	0	3	1	2
211	4	0	1	1	0	130	0	0	1	99	1	0
212	0	0	2	5	0	153	99	0	0	1	1	2
213	0	0	2	2	1	200	1	0	1	1	1	0
214	0	0	2	2	0	148	1	1	0	99	1	0
215	0	0	2	2	1	134	0	0	1	1	1	0
216	2	0	2	2	1	170	1	0	1	3	1	0
217	4	0	3	3	0	153	0	1	1	99	1	0
218	0	0	2	2	0	168	1	0	1	99	1	0
219	0	0	2	2	0	175	99	0	0	1	1	0
220	0	0	2	5	0	138	0	0	1	3	1	0
221	4	0	3	1	0	197	1	3	0	1	1	0
222	0	0	2	2	0	134	0	1	1	99	0	2
223	0	0	2	2	1	176	1	0	0	1	0	2
224	0	0	1	1	0	185	1	0	1	1	1	2
225	0	0	2	2	1	150	0	0	0	3	0	2
226	0	0	2	5	0	158	0	0	0	1	1	0
227	4	0	1	1	0	192	1	1	1	1	1	0
228	0	0	4	4	1	163	1	0	1	3	1	0
229	0	0	2	2	0	166	1	0	0	1	1	2
230	0	0	2	2	0	162	0	0	1	3	1	0
231	0	0	2	2	0	163	1	0	1	1	1	2

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
232	0	1	2	2	1	170	99	0	1	3	0	1
233	0	0	2	2	1	143	0	0	1	1	1	2
234	0	0	2	2	0	170	0	0	0	99	1	0
235	4	0	1	1	0	152	0	0	1	1	1	2
236	0	0	2	2	0	152	99	0	1	1	1	2
237	0	0	2	2	0	181	1	0	0	1	1	0
238	0	0	2	2	0	153	0	0	1	1	1	0
239	0	0	1	1	0	149	0	1	1	99	1	2
240	0	0	1	1	0	172	1	0	1	1	1	2
241	0	0	2	5	0	156	1	4	1	99	0	1
242	0	0	4	4	0	167	1	0	1	1	1	2
243	2	0	2	2	0	158	1	0	0	3	0	2
244	0	0	1	1	0	166	1	0	1	1	0	2
245	0	0	2	2	0	180	0	0	1	3	1	2
246	4	0	2	2	0	144	0	1	1	1	0	2
247	4	0	1	1	1	167	1	0	0	1	1	2
248	0	0	3	3	0	152	1	1	1	1	1	0
249	0	0	2	2	1	138	1	0	1	1	0	2
250	0	0	2	2	1	162	0	0	0	1	1	2
251	4	1	2	2	0	146	1	0	1	1	0	0
252	4	0	2	2	0	189	1	0	1	3	1	2
253	0	0	2	5	0	169	1	0	1	1	1	0
254	0	0	2	2	0	141	0	0	0	3	1	2
255	0	0	1	1	0	138	0	0	0	1	0	2
256	0	0	2	2	1	150	1	0	1	1	1	0
257	4	0	2	2	0	145	0	0	0	1	1	0
258	0	0	2	2	0	135	1	0	1	1	0	2
259	4	0	2	2	0	152	0	0	1	1	1	0
260	0	0	2	2	0	179	1	0	0	1	1	0
261	4	0	2	2	1	175	99	1	1	1	1	2
262	4	0	2	2	0	163	0	0	0	1	0	2
263	2	0	2	2	0	174	1	0	0	1	0	0
264	0	0	1	1	0	202	1	0	0	1	1	0
265	0	0	1	5	1	188	1	0	0	1	99	2
266	0	0	4	4	0	160	1	0	1	1	1	2
267	0	1	2	2	0	144	1	0	1	3	1	0
268	0	0	2	5	0	164	0	0	1	1	1	2
269	0	0	4	4	1	146	1	0	1	1	1	0
270	0	0	2	5	0	173	1	0	1	1	1	0
271	0	0	2	2	0	128	0	0	1	1	0	2
272	0	0	2	2	1	177	1	0	0	1	1	2
273	0	0	2	2	0	139	0	0	1	1	1	2
274	4	0	1	1	0	149	1	1	1	3	99	1
275	0	0	2	2	1	179	0	0	0	1	1	0
276	0	0	1	3	0	154	0	0	1	1	1	0
277	0	0	4	4	0	197	1	0	0	1	1	0
278	2	0	1	5	0	151	0	0	1	1	1	2
279	0	0	2	2	0	145	0	1	0	3	99	2
281	0	0	4	4	0	180	1	0	0	1	1	2
282	0	0	4	4	0	155	0	0	1	3	1	2
283	0	0	2	2	1	172	1	0	0	1	0	2
284	4	0	4	4	0	162	1	4	1	1	0	2
286	4	0	1	1	0	176	1	3	0	1	1	2
287	0	0	1	1	0	190	1	0	0	3	1	2
288	4	0	4	4	0	147	1	0	1	1	1	0

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
289	2	0	4	4	0	176	1	0	1	1	99	0
290	0	0	2	5	0	150	1	0	1	1	1	2
291	0	0	2	2	0	168	1	4	1	1	99	0
292	0	0	5	2	0	139	0	0	0	1	0	0
293	0	0	4	4	1	149	0	0	1	1	0	2
294	0	0	2	5	1	158	0	0	1	1	1	0
295	0	0	2	2	0	161	1	0	0	1	0	2
296	0	0	1	1	0	193	1	0	1	1	0	2
297	0	0	2	2	1	161	0	0	0	1	1	2
298	0	0	2	2	0	169	0	0	0	3	0	2
300	4	0	4	4	0	205	1	0	1	1	1	2
301	0	0	1	1	0	156	1	0	1	3	1	2
302	2	0	3	3	0	145	0	0	1	1	0	2
303	0	0	1	1	0	161	1	0	0	1	1	0
305	0	0	2	2	0	170	1	0	1	1	1	0
306	1	0	2	2	1	207	1	0	0	1	99	2
307	0	0	2	2	0	170	0	1	0	3	1	0
308	0	0	2	2	1	149	0	0	1	1	1	2
309	0	0	4	4	0	147	1	0	0	3	1	2
310	0	0	2	2	0	182	0	0	1	3	1	2
311	0	0	2	2	0	169	1	0	1	1	99	0
313	0	0	1	1	0	161	0	0	1	1	0	0
314	4	0	1	1	1	177	1	0	0	1	1	0
315	0	0	2	2	1	152	0	0	0	1	1	0
316	0	0	2	2	1	149	0	0	1	3	1	2
317	0	0	4	4	1	153	1	0	1	1	1	0
318	0	0	2	2	1	156	0	0	1	1	0	0
319	4	1	1	1	0	146	0	3	1	1	1	2
320	0	0	2	2	0	145	0	0	1	1	1	2
321	0	0	3	5	0	143	0	1	1	1	1	2
322	1	0	2	2	0	139	0	0	0	1	0	0
323	0	0	2	2	1	146	0	0	0	1	99	2
324	0	0	2	5	1	140	0	0	1	1	1	0
325	4	0	4	4	1	191	1	0	0	1	1	2
326	0	0	1	3	0	191	1	0	0	1	1	2
327	4	0	4	4	0	183	1	0	1	1	1	2
328	0	0	1	5	0	161	1	4	1	1	1	2
329	0	0	1	1	0	168	0	0	1	3	0	2
330	2	0	2	3	0	205	1	0	1	1	0	2
331	0	0	2	2	0	163	1	0	1	1	1	2
332	0	0	1	1	1	202	1	0	0	1	1	2
333	0	0	2	2	0	173	1	0	0	1	1	0
334	4	0	1	1	0	154	1	0	1	3	0	0
335	0	0	2	2	0	175	1	0	0	1	1	2
336	0	0	4	4	0	178	1	1	1	1	0	0
337	4	0	1	1	1	175	0	0	1	1	1	0
338	0	0	4	4	0	168	0	0	1	1	99	2
339	0	0	5	5	0	175	1	0	1	1	0	2
340	0	0	1	1	0	175	1	0	1	1	99	0
341	4	0	4	4	0	175	1	0	1	3	0	2
342	0	0	2	2	0	167	0	0	0	1	1	0
344	0	0	1	1	0	187	1	0	1	1	0	0
345	0	0	2	2	0	153	1	0	0	1	0	0
346	4	0	1	1	0	202	1	0	0	3	1	0
347	4	0	2	2	0	181	1	0	1	4	1	2

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
348	0	0	2	2	0	167	1	0	1	4	0	2
349	0	0	1	5	0	163	1	0	0	1	0	0
350	0	0	4	4	1	168	1	0	0	1	1	2
351	0	0	1	5	0	164	1	0	0	1	0	2
352	4	0	1	1	1	141	0	0	0	4	0	1
353	0	0	2	2	0	174	1	0	0	1	1	2
354	4	0	2	2	0	167	1	0	0	1	1	2
355	4	0	2	2	0	187	1	4	0	1	0	0
356	0	0	2	2	1	183	1	0	0	1	1	2
357	4	0	2	2	0	165	0	0	0	1	1	0
358	0	0	2	2	1	212	1	0	0	1	1	0
359	2	0	2	2	0	177	0	0	1	1	0	2
361	0	0	2	2	1	154	0	0	1	1	1	2
362	4	0	2	2	0	163	0	1	0	3	99	2
363	4	0	2	2	0	161	0	1	0	3	1	2
364	0	0	1	1	1	167	1	0	0	1	1	0
365	0	0	1	1	0	148	0	0	1	1	1	2
366	4	0	1	3	0	159	1	0	1	1	1	2
367	0	0	1	1	1	167	1	0	1	3	1	0
368	4	0	1	1	0	142	0	0	1	1	99	0
369	0	0	4	4	0	202	1	0	1	3	0	2
370	2	0	2	2	1	166	0	0	0	1	1	2
371	4	0	4	4	0	200	1	0	1	1	1	2
372	4	0	2	2	0	179	1	0	1	1	1	2
373	0	0	1	1	0	214	1	0	0	1	0	2
374	0	0	2	1	1	168	0	0	0	1	0	0
375	4	0	2	5	0	198	1	0	0	1	1	2
376	2	0	4	4	0	156	0	0	0	1	1	0
377	0	0	1	1	0	111	0	0	1	1	1	2
378	4	0	2	2	0	159	0	0	0	1	1	2
379	2	0	2	2	0	161	0	1	1	3	99	0
380	0	0	2	2	0	202	1	0	1	1	99	2
381	0	0	2	2	0	158	1	3	1	1	0	2
382	4	0	2	2	0	174	1	0	0	1	0	0
383	0	0	4	4	1	191	1	0	1	1	1	2
384	0	0	4	4	0	157	1	2	1	1	0	0
385	0	0	2	2	1	144	0	0	1	1	1	2
386	4	0	2	2	1	152	1	1	1	3	0	2
387	0	0	2	2	1	176	1	0	1	1	1	2
388	2	1	2	2	0	157	1	0	1	1	0	2
389	0	0	4	4	0	168	0	0	1	2	0	2
390	0	0	4	4	0	171	0	0	0	1	1	2
391	1	0	2	2	0	164	1	1	1	3	99	2
393	0	0	1	5	1	162	0	0	0	3	1	2
394	0	0	2	2	1	151	1	0	1	1	1	0
395	0	0	2	2	0	155	0	4	0	1	1	2
396	0	0	2	2	1	157	1	0	1	3	1	0
397	4	0	2	2	0	202	1	0	0	1	1	2
398	0	0	2	2	0	149	0	0	1	1	1	0
399	0	0	2	2	0	144	0	0	1	1	1	2
400	0	0	2	2	0	147	1	0	1	3	1	0
401	0	0	2	2	0	158	1	0	1	1	1	0
402	0	0	4	4	0	158	1	1	1	1	1	0
403	0	0	2	2	1	127	0	0	1	1	1	0
404	4	0	2	2	1	165	1	0	0	1	1	2

Raw Data (continued)

ID Number	EXT	HG	MXRET	MDRET	RPE	START	PUB	RACE	SEX	MSTAT	OCC	INS
405	4	0	4	4	0	218	1	1	0	1	0	0
406	0	0	4	4	1	139	0	0	1	1	1	0
407	4	0	2	2	0	175	1	0	0	1	1	2
408	0	0	2	2	0	182	1	0	0	1	1	2
409	0	0	4	4	1	163	1	0	1	1	0	0
410	0	0	2	2	1	165	1	0	1	3	1	0
411	0	0	2	2	1	142	0	0	1	1	0	0
412	4	0	2	2	0	149	0	4	0	1	1	1
413	4	0	2	2	0	129	0	0	1	1	99	0
414	0	0	2	2	1	159	1	0	1	3	1	2
415	1	1	2	2	1	161	0	0	0	3	99	2
416	0	0	2	2	1	163	1	0	1	1	1	0
417	0	0	2	2	1	165	1	0	0	1	1	2
418	0	0	1	1	1	131	0	0	1	1	0	2
419	0	0	2	2	0	174	0	0	0	3	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
1	1	0	99	99	0	0	0	99	0	0
2	2	0	99	99	0	0	0	99	2	2
3	1	0	99	99	0	0	0	99	0	0
4	2	1	8	0	1	0	0	99	0	0
6	2	0	99	99	0	0	0	99	0	0
7	2	0	99	99	0	0	0	0	0	0
8	1	0	99	99	0	0	0	0	0	0
9	2	0	99	99	0	0	0	0	0	0
10	2	0	99	99	0	0	0	99	7	7
11	3	0	99	99	0	1	0	0	0	0
12	3	0	99	99	0	0	0	99	0	0
13	2	0	99	99	0	0	0	99	0	0
14	1	0	99	99	0	0	0	0	0	0
17	1	0	99	99	0	0	0	3	0	3
18	2	0	99	99	1	1	0	99	1	1
19	2	0	99	99	0	0	0	0	0	0
20	1	0	99	99	0	0	0	0	1	1
21	2	0	99	99	0	0	0	99	2	2
22	1	0	99	99	0	0	0	99	0	0
23	1	0	99	99	1	0	0	99	0	0
24	2	0	99	99	0	0	0	99	0	0
25	1	1	15	0	0	0	0	99	6	6
27	1	0	99	99	0	0	0	99	1	1
28	2	0	99	99	0	1	0	99	0	0
29	2	1	7	0	0	0	0	99	0	0
30	1	0	99	99	0	0	0	0	0	0
31	2	1	2	0	0	0	0	99	1	1
32	1	0	99	99	0	0	0	99	0	0
33	1	0	99	99	0	0	0	99	0	0
34	2	0	99	99	0	0	0	99	0	0
36	2	0	99	99	0	0	0	0	0	0
37	1	0	99	99	0	0	0	0	2	2
38	2	0	99	99	0	1	0	99	0	0
39	2	1	6	0	0	0	0	0	0	0
41	3	0	99	99	0	0	0	99	0	0
42	1	0	99	99	0	0	0	99	5	5
43	3	0	99	99	0	0	0	99	0	0
44	2	0	99	99	0	0	0	0	0	0
45	1	1	5	0	0	0	0	0	0	0
46	2	0	99	99	0	0	0	99	0	0
47	2	0	99	99	0	0	0	99	0	0
48	1	0	99	99	0	0	0	99	0	0
49	1	0	99	99	0	1	0	99	0	0
50	2	0	99	99	0	0	0	99	0	0
51	1	0	99	99	0	0	0	99	2	2
52	1	0	99	99	0	0	0	99	0	0
54	1	0	99	99	0	0	0	0	0	0
56	3	0	99	99	0	0	0	99	0	0
58	2	0	99	99	0	0	0	99	2	2
59	2	0	99	99	0	0	0	99	4	4
60	3	0	99	99	0	1	0	99	0	0
61	2	0	99	99	0	0	0	99	0	0
62	2	0	99	99	0	0	0	99	0	0
63	2	0	99	99	0	1	0	99	1	1
64	2	0	99	99	0	0	0	0	1	1

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
65	99	0	99	99	0	0	0	99	0	0
66	1	1	3	0	0	0	0	99	0	0
67	3	0	99	99	0	0	0	0	0	0
68	2	0	99	99	0	0	0	99	0	0
69	2	0	99	99	0	0	0	99	4	4
70	1	0	99	99	0	0	0	99	0	0
71	1	0	99	99	0	0	0	99	1	1
72	1	0	99	99	0	0	0	0	0	0
73	2	0	99	99	0	0	0	0	0	0
74	2	0	99	99	0	0	0	99	0	0
75	2	0	99	99	0	0	0	99	0	0
76	1	0	99	99	0	0	0	99	0	0
77	1	0	99	99	0	0	0	99	0	0
78	1	0	99	99	0	0	0	99	0	0
79	2	0	99	99	0	0	0	99	0	0
80	1	1	1	99	0	0	0	99	2	2
81	1	0	99	99	0	0	0	99	6	6
82	1	0	99	99	0	0	0	99	0	0
83	2	0	99	99	0	0	0	99	0	0
84	2	0	99	99	0	0	0	99	0	0
85	4	0	99	99	0	0	0	99	0	0
86	99	0	99	99	0	0	0	0	0	0
87	1	0	99	99	0	0	0	99	0	0
88	1	0	99	99	0	0	0	99	5	5
89	1	0	99	99	0	0	0	99	2	2
90	2	0	99	99	0	0	0	99	0	0
91	2	0	99	99	0	0	0	99	0	0
92	3	0	99	99	0	0	0	99	4	4
93	1	0	99	99	0	0	0	99	5	5
94	1	0	99	99	0	0	0	0	1	1
95	1	0	99	99	0	0	0	99	0	0
96	3	0	99	99	0	0	0	0	2	2
97	1	1	5	0	0	1	0	99	1	1
98	1	0	99	99	0	0	0	99	0	0
99	3	0	99	99	0	0	0	99	0	0
100	1	0	99	99	0	0	0	99	0	0
101	2	0	99	99	0	0	0	99	4	4
102	1	0	99	99	0	0	0	99	0	0
103	2	0	99	99	0	0	0	99	6	6
104	2	0	99	99	0	0	0	1	3	4
105	1	0	99	99	0	0	0	99	0	0
106	1	0	99	99	0	0	0	99	0	0
107	2	1	7	99	0	0	0	99	0	0
108	2	0	99	99	0	0	0	99	0	0
109	2	0	99	99	0	0	0	0	0	0
110	1	0	99	99	0	0	0	99	7	7
111	1	0	99	99	0	0	0	99	2	2
112	2	1	10	0	0	0	0	99	0	0
113	1	0	99	99	0	0	0	0	0	0
114	2	0	99	99	0	0	0	99	2	2
115	1	0	99	99	1	0	0	99	2	2
116	1	0	99	99	0	0	0	99	0	0
117	2	0	99	99	0	0	0	99	1	1
118	1	0	99	99	0	0	0	99	0	0
119	3	0	99	99	0	0	0	99	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
120	1	0	99	99	0	0	0	99	0	0
121	2	0	99	99	0	0	0	0	0	0
122	2	1	10	0	0	0	0	0	0	0
123	1	0	99	99	0	0	0	99	0	0
124	3	0	99	99	0	0	0	99	2	2
125	2	0	99	99	0	0	0	99	0	0
126	2	0	99	99	0	0	0	99	0	0
127	4	0	99	99	0	0	0	1	5	6
128	2	0	99	99	0	0	0	99	0	0
129	1	0	99	99	0	0	0	1	0	1
130	2	0	99	99	0	0	0	0	0	0
131	99	1	6	99	0	0	0	99	0	0
132	1	0	99	99	0	0	0	99	0	0
133	2	0	99	99	0	0	0	99	0	0
134	1	0	99	99	0	0	0	99	0	0
135	1	0	99	99	0	0	0	99	0	0
136	1	0	99	99	0	0	0	99	0	0
137	1	0	99	99	0	0	0	99	0	0
138	1	0	99	99	0	0	0	99	2	2
139	2	0	99	99	0	0	0	99	0	0
140	2	0	99	99	0	0	0	99	0	0
141	2	0	99	99	0	0	0	99	0	0
142	1	0	99	99	0	0	0	99	1	1
143	1	0	99	99	0	0	0	99	1	1
144	1	0	99	99	0	0	0	99	0	0
145	2	0	99	99	0	1	0	0	0	0
146	1	0	99	99	0	0	0	99	5	5
147	1	0	99	99	0	0	0	99	0	0
148	1	0	99	99	0	0	0	99	2	2
149	3	0	99	99	0	0	0	0	1	1
150	1	0	99	99	0	0	0	99	0	0
151	3	0	99	99	0	0	0	99	2	2
152	2	1	19	0	0	0	0	99	2	2
153	1	0	99	99	0	0	0	99	0	0
154	1	0	99	99	0	0	0	99	0	0
155	2	0	99	99	0	0	0	1	3	4
156	2	1	7	0	0	0	0	99	1	1
157	1	0	99	99	0	0	0	0	0	0
158	3	0	99	99	0	0	0	99	0	0
159	1	0	99	99	0	0	0	99	0	0
160	2	0	99	99	0	1	0	99	2	2
161	2	0	99	99	0	0	0	99	0	0
162	3	0	99	99	0	1	0	0	0	0
165	1	0	99	99	0	0	0	99	3	3
166	3	0	99	99	0	0	0	0	2	2
167	2	0	99	99	0	0	0	0	0	0
168	2	0	99	99	0	0	0	99	0	0
169	2	0	99	99	0	0	0	99	0	0
170	2	0	99	99	0	0	0	99	4	4
171	1	0	99	99	0	0	0	99	0	0
172	1	0	99	99	0	0	0	99	3	3
173	2	0	99	99	0	0	0	99	0	0
174	3	0	99	99	0	0	0	99	0	0
175	3	0	99	99	0	0	0	99	0	0
176	2	0	99	99	0	0	0	99	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
177	3	0	99	99	0	0	0	99	2	2
178	1	0	99	99	0	0	0	0	0	0
179	3	0	99	99	0	0	0	1	6	7
180	1	0	99	99	0	0	0	99	0	0
181	2	0	99	99	0	0	0	0	6	6
182	2	0	99	99	0	0	0	99	3	3
183	2	0	99	99	0	0	0	99	0	0
184	1	0	99	99	0	0	0	99	0	0
185	1	0	99	99	0	0	0	0	0	0
186	2	0	99	99	0	0	0	99	0	0
187	1	0	99	99	0	0	0	99	0	0
188	2	1	10	0	0	0	0	99	0	0
189	1	0	99	99	0	0	0	99	0	0
190	2	0	99	99	0	0	0	1	0	1
191	2	0	99	99	0	0	0	99	0	0
192	2	0	99	99	0	0	0	0	0	0
193	99	0	99	99	0	1	0	99	0	0
194	1	0	99	99	0	0	0	99	1	1
195	2	0	99	99	0	0	0	99	5	5
196	2	0	99	99	0	0	0	99	2	2
197	1	0	99	99	0	0	0	99	0	0
198	1	0	99	99	1	0	0	99	0	0
199	2	0	99	99	0	0	0	99	2	2
200	3	0	99	99	0	0	0	99	2	2
201	2	0	99	99	0	0	0	99	0	0
202	1	1	6	1	0	0	0	99	0	0
203	2	0	99	99	0	1	0	99	0	0
204	3	0	99	99	0	0	0	99	0	0
205	2	0	99	99	0	0	0	0	0	0
206	1	0	99	99	0	0	0	99	1	1
207	99	0	99	99	0	0	0	99	0	0
208	1	0	99	99	0	0	0	99	0	0
209	3	0	99	99	0	0	0	99	1	1
210	2	0	99	99	0	0	0	99	0	0
211	3	0	99	99	0	0	0	99	0	0
212	99	0	99	99	0	0	0	99	0	0
213	3	0	99	99	0	0	0	99	0	0
214	2	0	99	99	0	0	0	99	3	3
215	1	0	99	99	0	0	0	99	1	1
216	1	0	99	99	0	0	0	0	1	1
217	3	0	99	99	0	0	0	99	4	4
218	1	0	99	99	0	0	0	99	5	5
219	2	0	99	99	0	0	0	99	7	7
220	2	0	99	99	0	0	0	99	0	0
221	2	0	99	99	0	0	0	99	4	4
222	99	0	99	99	0	0	0	0	0	0
223	1	0	99	99	0	0	0	99	0	0
224	2	0	99	99	0	1	0	99	0	0
225	4	0	99	99	0	0	0	99	0	0
226	3	0	99	99	0	0	0	99	1	1
227	2	0	99	99	0	0	0	99	3	3
228	2	0	99	99	0	0	0	99	0	0
229	3	0	99	99	0	0	0	99	2	2
230	1	0	99	99	0	0	0	99	0	0
231	2	0	99	99	0	0	0	99	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
232	2	0	99	99	0	1	0	99	0	0
233	1	0	99	99	0	0	0	0	0	0
234	1	0	99	99	0	0	0	1	2	3
235	99	0	99	99	0	0	0	99	0	0
236	1	1	6	0	0	0	0	99	0	0
237	1	0	99	99	0	0	0	99	3	3
238	2	1	5	0	0	0	0	0	0	0
239	99	0	99	99	0	1	0	99	0	0
240	1	0	99	99	0	0	0	99	0	0
241	2	0	99	99	0	0	0	99	2	2
242	1	0	99	99	1	0	0	99	0	0
243	3	0	99	99	0	1	0	99	4	4
244	2	0	99	99	0	0	0	99	0	0
245	2	0	99	99	0	0	0	99	0	0
246	2	0	99	99	0	0	0	99	0	0
247	3	0	99	99	0	0	0	0	0	0
248	2	0	99	99	0	0	0	99	0	0
249	1	0	99	99	0	0	0	99	0	0
250	2	0	99	99	0	0	0	0	0	0
251	1	0	99	99	0	0	0	99	0	0
252	2	1	14	0	0	0	0	99	2	2
253	2	0	99	99	0	0	0	99	2	2
254	3	0	99	99	0	1	0	99	1	1
255	3	0	99	99	0	0	0	99	4	4
256	2	0	99	99	0	0	0	99	0	0
257	2	0	99	99	0	0	0	99	0	0
258	3	0	99	99	0	0	0	99	1	1
259	2	0	99	99	0	0	0	99	0	0
260	1	0	99	99	0	0	0	99	0	0
261	1	0	99	99	0	0	0	99	0	0
262	2	0	99	99	0	0	0	99	0	0
263	2	1	12	1	0	0	0	99	0	0
264	1	0	99	99	0	0	0	99	0	0
265	3	0	99	99	0	0	0	99	4	4
266	2	0	99	99	0	0	0	99	0	0
267	2	1	4	0	0	0	0	99	0	0
268	1	0	99	99	0	0	0	99	0	0
269	1	0	99	99	0	0	0	99	0	0
270	2	1	12	0	0	0	0	99	0	0
271	2	0	99	99	0	0	0	0	0	0
272	1	0	99	99	0	0	0	99	0	0
273	1	1	7	0	0	0	0	99	0	0
274	2	0	99	99	0	0	0	99	0	0
275	1	0	99	99	0	0	0	99	0	0
276	3	0	99	99	0	0	0	0	0	0
277	3	0	99	99	0	0	0	99	0	0
278	1	0	99	99	0	0	0	2	0	2
279	3	0	99	99	0	0	0	99	0	0
281	2	1	10	0	0	0	0	99	0	0
282	2	1	6	0	0	0	0	0	0	0
283	1	0	99	99	0	0	0	99	0	0
284	1	0	99	99	0	0	0	99	5	5
286	2	0	99	99	0	0	0	99	4	4
287	3	0	99	99	0	1	0	99	0	0
288	1	0	99	99	0	0	0	0	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
289	2	0	99	99	0	0	0	99	3	3
290	2	0	99	99	0	0	0	99	2	2
291	2	0	99	99	0	0	0	99	0	0
292	1	0	99	99	0	0	0	99	0	0
293	1	0	99	99	0	0	0	99	0	0
294	1	0	99	99	0	0	0	99	0	0
295	3	0	99	99	0	0	0	99	0	0
296	2	0	99	99	0	0	0	99	3	3
297	1	0	99	99	0	0	0	99	0	0
298	2	1	1	0	0	0	0	99	4	4
300	1	0	99	99	0	0	0	99	9	9
301	3	0	99	99	0	0	0	99	1	1
302	2	0	99	99	0	0	0	99	0	0
303	2	0	99	99	0	0	0	99	0	0
305	1	0	99	99	0	0	0	99	0	0
306	2	0	99	99	0	0	0	0	0	0
307	2	0	99	99	0	0	0	99	5	5
308	1	1	6	0	0	0	0	99	2	2
309	1	0	99	99	0	0	0	2	3	5
310	2	0	99	99	0	0	0	0	1	1
311	2	0	99	99	1	0	0	99	0	0
313	1	1	10	0	0	0	0	99	0	0
314	1	0	99	99	0	0	0	0	0	0
315	1	0	99	99	0	0	0	0	3	3
316	1	0	99	99	0	0	0	99	2	2
317	2	0	99	99	1	0	0	99	0	0
318	2	0	99	99	0	0	0	99	2	2
319	1	0	99	99	0	0	0	99	1	1
320	2	0	99	99	0	0	0	99	0	0
321	2	0	99	99	0	0	0	99	0	0
322	2	0	99	99	0	0	0	0	0	0
323	1	0	99	99	0	0	0	99	0	0
324	1	0	99	99	0	0	0	0	0	0
325	1	0	99	99	0	0	0	99	1	1
326	1	0	99	99	0	0	0	99	0	0
327	2	0	99	99	0	0	0	0	1	1
328	3	0	99	99	0	0	0	1	3	4
329	2	0	99	99	0	0	0	3	2	5
330	2	0	99	99	0	0	0	1	0	0
331	1	0	99	99	0	0	0	99	0	0
332	3	0	99	99	0	0	0	99	4	4
333	1	0	99	99	0	0	0	99	0	0
334	2	0	99	99	0	0	0	99	0	0
335	2	0	99	99	0	0	0	0	0	0
336	1	0	99	99	0	1	0	0	0	0
337	1	0	99	99	0	0	0	0	0	0
338	2	0	99	99	0	0	0	0	4	4
339	2	0	99	99	0	0	0	99	0	0
340	1	0	99	99	0	0	0	99	0	0
341	2	0	99	99	0	0	0	99	0	0
342	1	0	99	99	0	0	0	99	1	1
344	3	0	99	99	0	0	0	99	0	0
345	2	0	99	99	0	0	0	99	0	0
346	4	0	99	99	0	0	0	99	1	1
347	2	0	99	99	0	0	0	99	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
348	1	1	8	0	1	1	0	99	0	0
349	2	0	99	99	0	0	0	99	0	0
350	2	0	99	99	0	0	0	99	0	0
351	1	0	99	99	0	0	0	99	0	0
352	2	0	99	99	0	0	0	99	0	0
353	3	0	99	99	0	0	0	99	0	0
354	3	0	99	99	0	0	1	99	0	0
355	3	0	99	99	0	0	0	99	1	1
356	3	0	99	99	0	0	0	99	0	0
357	2	0	99	99	0	0	0	99	0	0
358	1	0	99	99	0	0	0	99	0	0
359	2	0	99	99	0	0	0	99	4	4
361	1	0	99	99	0	0	0	99	0	0
362	3	0	99	99	0	0	0	99	0	0
363	3	0	99	99	0	0	0	99	0	0
364	1	0	99	99	0	0	0	99	0	0
365	2	1	2	0	0	0	0	99	0	0
366	2	0	99	99	0	0	0	99	1	1
367	2	0	99	99	0	1	0	99	0	0
368	2	0	99	99	0	0	0	99	0	0
369	2	0	99	99	0	0	0	99	8	8
370	2	0	99	99	0	0	0	0	0	0
371	2	0	99	99	0	0	0	99	2	2
372	1	1	8	0	0	0	0	99	0	0
373	2	0	99	99	0	0	0	0	0	0
374	1	0	99	99	0	0	0	99	0	0
375	2	0	99	99	0	0	0	99	0	0
376	2	0	99	99	0	0	0	99	0	0
377	1	0	99	99	0	0	0	99	0	0
378	2	0	99	99	0	0	0	99	0	0
379	1	0	99	99	0	0	0	0	1	1
380	2	0	99	99	0	0	0	99	0	0
381	1	0	99	99	0	0	0	99	0	0
382	2	0	99	99	0	0	0	99	0	0
383	2	0	99	99	0	0	0	99	3	3
384	1	0	99	99	0	1	0	99	2	2
385	2	0	99	99	0	0	0	99	1	1
386	1	0	99	99	0	0	0	99	0	0
387	1	0	99	99	0	0	0	99	1	1
388	3	0	99	99	0	1	0	0	4	4
389	1	0	99	99	0	0	0	0	0	0
390	3	0	99	99	0	0	0	99	0	0
391	2	0	99	99	0	0	0	99	2	2
393	2	0	99	99	0	0	0	99	2	2
394	3	1	10	0	0	0	0	99	0	0
395	2	0	99	99	0	1	0	99	0	0
396	2	0	99	99	0	0	0	99	0	0
397	3	1	7	0	0	0	0	0	0	0
398	1	0	99	99	0	0	0	0	0	0
399	1	0	99	99	0	0	0	0	0	0
400	1	0	99	99	0	0	0	99	0	0
401	2	0	99	99	0	0	0	0	0	0
402	2	0	99	99	0	0	0	99	0	0
403	1	0	99	99	0	0	0	0	0	0
404	2	0	99	99	0	0	0	0	0	0

Raw Data (continued)

ID Number	GRADES	POE	SBA	SED	THRUST	DIGIT	BREATH	PRIREST	PEREST	TREST
405	2	0	99	99	0	0	0	99	1	1
406	2	1	6	0	0	0	0	1	0	1
407	3	0	99	99	0	0	0	99	0	0
408	2	0	99	99	0	0	0	99	0	0
409	2	0	99	99	0	0	0	99	0	0
410	2	0	99	99	0	0	0	99	0	0
411	2	0	99	99	0	0	0	99	0	0
412	2	0	99	99	1	0	0	99	0	0
413	2	0	99	99	0	0	0	99	0	0
414	2	0	99	99	0	0	0	99	0	0
415	1	0	99	99	0	0	0	0	0	0
416	1	0	99	99	0	0	0	99	0	0
417	2	0	99	99	0	0	0	99	0	0
418	1	0	99	99	0	0	0	99	0	0
419	3	0	99	99	0	0	0	0	0	0

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
1	99	0	0	1	0	1	7	50	2	2	6
2	99	1	1	1	0	0	11	100	1	1	0
3	99	0	0	1	0	0	2	30	1	1	4
4	99	0	0	1	0	0	9	0	2	2	6
6	99	0	0	1	0	0	2	50	2	2	4
7	0	0	0	1	0	1	2	30	2	2	4
8	0	0	0	1	0	0	3	100	2	1	15
9	1	0	1	1	0	2	3	25	2	1	5
10	99	0	0	1	0	0	0	10	2	2	14
11	0	0	0	1	0	0	2	100	2	2	14
12	99	0	0	1	0	1	3	20	2	2	4
13	99	0	0	1	0	0	5	0	2	1	3
14	0	1	1	1	0	0	4	100	2	2	10
17	0	0	0	1	2	0	5	100	3	3	9
18	99	0	0	0	0	0	0	0	1	1	3
19	0	0	0	1	0	0	2	25	1	1	7
20	0	0	0	1	0	0	0	0	2	2	0
21	99	2	2	2	0	0	2	20	1	1	9
22	99	0	0	1	0	0	5	25	2	2	2
23	99	0	0	1	0	0	3	20	2	2	3
24	99	1	1	1	0	0	3	60	1	1	6
25	99	0	0	1	0	0	2	70	1	1	4
27	99	0	0	1	0	0	3	20	2	2	9
28	99	0	0	1	0	0	5	20	2	2	3
29	99	0	0	1	0	0	4	90	1	1	0
30	0	0	0	1	0	0	6	50	1	2	2
31	99	0	0	1	0	0	-4	100	2	2	13
32	99	0	0	1	0	0	0	0	2	2	5
33	99	0	0	1	0	2	6	40	2	3	5
34	99	0	0	1	0	0	7	50	2	2	4
36	0	0	0	1	0	1	6	70	1	1	1
37	0	0	0	1	2	0	2	40	1	1	0
38	99	0	0	0	0	0	3	40	1	1	1
39	0	0	0	2	0	0	4	50	1	1	0
41	99	0	0	1	0	0	5	80	1	1	0
42	99	0	0	1	0	0	4	100	3	3	14
43	99	0	0	1	0	0	6	100	2	2	3
44	0	0	0	1	0	0	8	0	3	2	12
45	0	0	0	1	0	0	2	100	1	1	5
46	99	0	0	1	0	0	6	75	2	2	4
47	99	0	0	1	0	0	4	100	2	2	0
48	99	0	0	1	0	1	2	30	1	1	0
49	99	0	0	1	0	0	3	20	2	2	10
50	99	0	0	1	0	0	5	80	2	2	2
51	99	0	0	1	0	0	6	100	2	2	10
52	99	0	0	1	0	0	6	100	2	2	8
54	0	0	0	2	0	0	8	25	2	2	20
56	99	0	0	1	0	0	2	10	3	2	0
58	99	0	0	1	0	0	0	0	1	1	5
59	99	0	0	1	0	0	3	50	1	1	5
60	99	0	0	2	0	0	4	40	2	2	4
61	99	0	0	2	0	0	7	100	1	1	0
62	99	0	0	1	0	0	3	60	1	1	0
63	99	0	0	2	0	0	5	60	2	2	7
64	1	0	1	1	0	0	4	100	1	1	12

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
65	99	0	0	1	0	0	13	90	1	1	6
66	99	0	0	2	0	0	0	0	1	1	0
67	0	1	1	1	0	2	3	80	2	2	0
68	99	0	0	2	0	0	2	40	2	1	0
69	99	0	0	1	0	0	3	75	2	2	0
70	99	0	0	1	0	0	2	50	1	1	0
71	99	0	0	1	1	0	2	30	2	2	4
72	0	0	0	1	1	0	4	60	2	2	0
73	0	0	0	2	0	0	3	80	2	2	10
74	99	0	0	3	1	0	3	25	1	1	6
75	99	0	0	3	0	0	2	30	2	2	5
76	99	0	0	1	0	0	2	75	1	1	0
77	99	0	0	1	0	0	3	0	2	2	4
78	99	0	0	1	0	0	4	80	3	3	2
79	99	0	0	1	0	0	4	20	3	3	4
80	99	0	0	2	0	0	4	50	2	2	3
81	99	0	0	2	0	0	4	40	3	3	0
82	99	0	0	1	0	0	6	100	2	2	1
83	99	0	0	2	0	0	1	50	2	2	2
84	99	0	0	1	0	0	4	100	1	1	4
85	99	0	0	1	0	0	7	70	2	2	2
86	1	0	1	1	1	1	2	100	1	1	4
87	99	0	0	1	0	0	1	10	2	2	3
88	99	0	0	1	1	0	8	40	2	2	6
89	99	0	0	1	0	0	2	10	2	1	6
90	99	0	0	1	0	0	4	50	3	2	3
91	99	0	0	1	0	4	5	100	1	1	5
92	99	0	0	1	0	0	9	20	2	2	0
93	99	1	1	1	0	0	10	50	2	3	0
94	0	0	0	1	0	2	8	20	2	2	3
95	99	0	0	1	0	0	2	40	1	1	3
96	0	1	1	1	0	1	5	40	2	2	2
97	99	0	0	2	0	0	4	0	1	3	0
98	99	0	0	1	0	0	4	40	1	1	0
99	99	0	0	2	0	0	3	40	1	1	4
100	99	0	0	1	0	0	3	60	1	2	3
101	99	0	0	1	0	0	6	20	2	2	8
102	99	1	1	1	0	0	3	80	3	3	6
103	99	0	0	1	0	0	4	100	3	3	1
104	0	1	1	2	2	2	6	100	2	1	0
105	99	0	0	1	0	0	4	30	2	2	8
106	99	0	0	1	0	0	4	20	1	1	4
107	99	0	0	1	0	0	2	80	1	1	0
108	99	0	0	1	0	0	7	70	2	2	0
109	0	0	0	1	2	0	3	20	1	1	0
110	99	0	0	1	0	0	4	50	1	1	7
111	99	2	2	1	0	0	6	100	2	1	5
112	99	0	0	1	0	0	2	60	1	1	4
113	0	0	0	1	0	0	6	80	2	2	6
114	99	0	0	1	0	0	2	40	2	2	0
115	99	0	0	1	0	0	5	0	1	1	4
116	99	0	0	0	0	0	2	20	2	1	2
117	99	0	0	1	0	0	6	70	1	2	0
118	99	0	0	1	1	0	4	33	2	2	10
119	99	0	0	1	2	0	5	100	2	2	7

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
120	99	0	0	1	0	0	3	60	2	2	3
121	0	0	0	1	0	0	6	45	1	2	3
122	0	0	0	1	0	0	2	80	2	2	7
123	99	0	0	1	0	0	4	40	2	2	0
124	99	0	0	1	1	0	3	10	1	1	0
125	99	0	0	1	0	0	1	100	2	2	7
126	99	0	0	2	0	0	3	75	2	2	2
127	0	0	0	1	2	0	4	20	2	3	0
128	99	0	0	1	0	1	2	60	2	2	14
129	0	2	2	1	0	0	5	60	1	1	0
130	0	0	0	1	0	0	4	35	2	2	0
131	99	0	0	2	0	0	4	40	3	3	4
132	99	0	0	1	0	0	4	50	3	1	4
133	99	0	0	1	0	0	2	20	2	3	7
134	99	0	0	2	0	0	3	50	2	1	4
135	99	0	0	0	0	0	3	60	1	1	5
136	99	0	0	2	0	0	9	0	1	1	8
137	99	0	0	1	0	0	3	50	1	1	0
138	99	0	0	1	0	0	6	100	2	2	2
139	99	0	0	1	0	1	2	100	1	1	8
140	99	0	0	2	0	0	5	60	2	2	1
141	99	0	0	2	0	0	2	15	1	1	3
142	99	0	0	1	0	2	4	10	1	1	5
143	99	0	0	1	0	0	3	15	2	2	4
144	99	0	0	1	0	0	2	80	3	3	5
145	0	0	0	1	0	0	5	10	2	2	5
146	99	0	0	1	0	0	2	100	2	2	0
147	99	0	0	1	0	0	4	50	1	1	4
148	99	0	0	1	0	0	6	90	1	1	1
149	0	0	0	1	0	0	4	40	1	1	5
150	99	0	0	1	0	0	6	50	2	2	3
151	99	3	3	1	0	0	0	100	3	3	0
152	99	0	0	1	0	0	9	0	1	1	0
153	99	0	0	1	0	0	2	90	1	1	0
154	99	0	0	1	1	0	5	80	1	1	3
155	0	0	0	1	0	0	0	10	1	3	0
156	99	1	1	1	0	0	5	70	1	1	0
157	0	0	0	1	0	0	5	60	1	1	0
158	99	0	0	1	0	0	3	50	1	1	0
159	99	0	0	1	0	0	6	25	1	1	2
160	99	0	0	1	0	0	3	0	1	1	0
161	99	0	0	1	0	0	8	60	2	1	2
162	0	0	0	1	0	1	4	0	1	1	5
165	99	0	0	1	0	0	5	30	2	3	1
166	0	0	0	1	0	0	0	70	3	3	0
167	0	0	0	1	0	0	4	70	2	1	2
168	99	0	0	1	0	0	1	0	1	1	2
169	99	0	0	1	0	0	4	60	1	1	3
170	99	0	0	1	0	0	2	50	1	1	3
171	99	0	0	1	0	0	3	60	3	3	5
172	99	0	0	1	0	0	4	5	1	1	0
173	99	0	0	1	0	0	9	90	2	1	3
174	99	0	0	1	0	0	5	30	2	1	0
175	99	2	2	1	0	0	7	60	2	2	2
176	99	0	0	2	0	0	4	10	1	1	3

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
177	99	0	0	1	0	0	4	100	1	3	3
178	0	0	0	1	0	0	1	90	3	1	5
179	0	0	0	2	0	0	6	10	2	3	0
180	99	2	2	2	0	0	4	40	1	1	3
181	1	0	1	1	1	0	2	20	1	1	2
182	99	0	0	1	0	0	1	20	1	1	7
183	99	0	0	1	0	0	2	10	2	1	0
184	99	0	0	1	0	2	1	50	2	2	12
185	0	0	0	0	0	0	2	50	2	2	0
186	99	4	4	1	0	0	6	10	2	2	0
187	99	0	0	1	0	0	8	50	1	1	0
188	99	0	0	1	0	0	5	30	2	2	7
189	99	0	0	1	0	0	3	100	2	2	0
190	1	0	1	2	2	0	2	30	2	2	0
191	99	4	4	1	0	0	2	90	1	1	4
192	0	2	2	1	0	1	2	15	2	2	0
193	99	0	0	1	0	0	9	100	2	1	0
194	99	1	1	1	2	0	2	35	1	1	1
195	99	0	0	1	0	0	3	20	2	3	0
196	99	0	0	1	0	0	4	50	1	1	0
197	99	0	0	1	0	0	5	20	1	1	8
198	99	0	0	1	0	2	1	20	2	1	0
199	99	0	0	1	0	0	2	25	1	1	6
200	99	0	0	1	0	0	5	70	2	2	0
201	99	0	0	1	0	0	2	20	2	2	9
202	99	0	0	1	0	0	2	20	2	3	0
203	99	0	0	1	0	0	6	0	2	2	6
204	99	0	0	1	0	1	10	80	2	1	6
205	0	0	0	1	0	0	8	100	2	1	0
206	99	0	0	1	0	0	4	75	2	2	4
207	99	0	0	1	1	0	2	20	1	1	4
208	99	0	0	1	0	0	2	20	2	2	12
209	99	1	1	1	0	0	5	15	1	3	4
210	99	0	0	1	0	0	6	50	2	1	2
211	99	0	0	1	0	0	4	30	1	1	4
212	99	0	0	1	0	0	7	80	2	2	0
213	99	0	0	1	0	0	4	15	3	3	0
214	99	0	0	1	0	0	4	50	1	1	0
215	99	0	0	1	0	0	3	60	1	1	0
216	0	2	2	2	0	0	7	50	2	1	2
217	99	0	0	1	0	0	9	100	1	1	0
218	99	0	0	1	0	0	1	60	3	1	2
219	99	0	0	1	0	0	8	60	2	1	0
220	99	2	2	1	0	0	2	20	2	2	0
221	99	2	2	1	0	2	2	10	2	1	5
222	1	0	1	1	0	0	5	50	2	1	0
223	99	0	0	1	0	0	4	60	2	2	1
224	99	1	1	1	0	0	5	0	1	3	2
225	99	0	0	1	0	0	6	50	2	3	5
226	99	1	1	1	0	0	3	25	2	3	0
227	99	0	0	1	0	0	2	0	2	1	3
228	99	0	0	1	0	0	5	65	3	1	5
229	99	0	0	1	0	0	3	50	1	1	0
230	99	0	0	1	0	0	1	30	1	1	2
231	99	0	0	1	0	0	2	50	1	1	0

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
232	99	0	0	1	0	0	2	0	1	1	1
233	0	0	0	1	0	0	5	90	1	1	3
234	0	0	0	1	0	0	1	40	1	3	2
235	99	0	0	1	0	0	8	50	2	2	5
236	99	0	0	1	0	0	2	100	1	1	2
237	99	0	0	1	0	0	2	70	2	2	2
238	0	0	0	1	0	1	2	70	2	2	3
239	99	0	0	1	0	0	2	0	1	1	0
240	99	0	0	1	0	0	2	50	1	1	2
241	99	0	0	1	0	0	2	50	1	1	1
242	99	0	0	1	0	0	2	50	2	2	0
243	99	0	0	1	0	0	6	90	3	3	0
244	99	0	0	1	0	0	2	20	1	1	2
245	99	0	0	1	0	0	3	60	1	1	0
246	99	0	0	1	0	0	5	90	1	1	5
247	0	0	0	1	0	0	2	80	3	1	12
248	99	0	0	1	0	0	2	20	1	1	4
249	99	0	0	1	0	0	0	0	2	2	1
250	0	0	0	1	0	0	2	0	2	1	4
251	99	0	0	1	0	0	3	100	2	1	8
252	99	0	0	1	0	1	0	0	1	1	8
253	99	0	0	1	0	0	3	100	1	1	0
254	99	0	0	1	0	1	10	100	3	3	0
255	99	1	1	1	0	0	3	90	1	1	0
256	99	0	0	1	0	0	3	40	1	1	0
257	99	0	0	1	0	0	7	100	1	1	5
258	99	0	0	1	0	0	5	40	2	2	0
259	99	0	0	1	0	0	5	80	1	1	0
260	99	0	0	1	0	1	2	40	1	1	4
261	99	1	1	1	0	0	3	40	3	3	4
262	99	0	0	1	0	0	4	30	1	1	2
263	99	0	0	2	0	0	7	5	1	1	3
264	99	0	0	1	0	0	5	80	1	1	3
265	99	1	1	1	0	0	0	20	2	3	8
266	99	0	0	2	0	0	6	80	1	1	3
267	99	0	0	1	0	0	3	20	1	1	3
268	99	0	0	1	0	0	3	20	1	3	6
269	99	0	0	1	0	0	3	50	2	1	3
270	99	0	0	1	0	0	3	80	1	1	2
271	0	0	0	1	0	0	4	20	1	1	0
272	99	0	0	1	0	0	3	60	1	1	3
273	99	0	0	1	0	0	5	60	2	1	0
274	99	0	0	1	0	0	6	30	1	1	7
275	99	0	0	1	0	1	3	75	1	1	2
276	0	0	0	1	0	0	3	50	1	3	1
277	99	0	0	2	0	0	4	60	2	3	3
278	0	0	0	1	0	0	8	50	2	1	8
279	99	0	0	1	0	0	11	60	1	1	0
281	99	0	0	1	0	0	7	100	1	1	3
282	0	0	0	1	4	0	3	50	1	1	5
283	99	0	0	2	0	0	6	60	3	3	4
284	99	0	0	1	0	0	7	30	2	1	3
286	99	0	0	1	0	0	2	20	2	3	14
287	99	0	0	1	0	0	2	20	1	1	4
288	0	0	0	1	0	0	5	50	1	2	0

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
289	99	0	0	1	0	0	9	40	2	2	0
290	99	0	0	1	0	0	3	30	1	1	3
291	99	0	0	1	0	0	2	60	1	1	3
292	99	0	0	1	0	0	2	30	1	1	0
293	99	0	0	1	0	0	6	75	1	2	2
294	99	1	1	1	0	0	4	30	1	3	3
295	99	0	0	1	0	0	6	75	1	1	4
296	99	0	0	1	0	0	4	75	3	1	1
297	99	0	0	1	0	0	1	0	2	3	3
298	99	0	0	2	0	0	3	45	3	3	0
300	99	0	0	1	0	0	0	0	3	3	16
301	99	2	2	1	2	0	6	80	1	2	0
302	99	0	0	1	0	0	4	60	1	1	8
303	99	0	0	1	0	0	4	50	1	1	6
305	99	0	0	1	0	0	8	100	1	1	5
306	0	0	0	1	0	0	3	100	2	2	3
307	99	0	0	1	1	0	2	20	1	1	0
308	99	0	0	1	0	0	5	50	1	1	1
309	0	0	0	1	0	0	4	50	1	1	6
310	0	0	0	2	1	0	0	50	1	3	5
311	99	0	0	1	0	0	3	85	1	1	3
313	99	0	0	1	0	0	7	70	2	2	4
314	0	0	0	1	0	0	6	80	2	3	15
315	0	0	0	1	0	0	3	80	1	1	0
316	99	0	0	2	0	0	1	80	1	1	4
317	99	0	0	1	0	0	4	0	2	1	6
318	99	0	0	1	0	0	3	50	2	1	2
319	99	0	0	1	0	0	7	75	1	1	13
320	99	0	0	1	0	0	6	50	1	1	2
321	99	1	1	1	0	0	3	20	1	1	0
322	0	0	0	1	0	0	3	40	1	3	7
323	99	0	0	1	0	0	1	100	2	1	3
324	0	0	0	1	0	0	2	40	1	2	0
325	99	0	0	1	0	0	4	10	2	1	7
326	99	0	0	1	0	0	2	50	1	3	0
327	0	0	0	1	0	1	2	50	2	2	1
328	0	0	0	1	1	1	2	10	1	1	1
329	0	1	1	1	0	1	4	40	2	2	5
330	0	0	0	3	0	0	9	100	2	3	2
331	99	0	0	1	0	0	3	90	3	3	3
332	99	0	0	2	0	0	1	10	2	1	11
333	99	0	0	1	4	0	1	20	2	1	0
334	99	0	0	1	0	0	5	80	2	2	0
335	0	0	0	1	0	0	2	50	1	1	3
336	0	0	0	1	0	0	2	5	3	3	0
337	0	0	0	1	0	0	2	50	2	2	6
338	0	0	0	1	0	0	2	80	3	1	5
339	99	0	0	1	0	1	1	50	1	1	0
340	99	0	0	1	1	0	1	20	1	1	0
341	99	0	0	1	0	0	8	20	2	2	6
342	99	0	0	1	0	0	3	50	1	3	0
344	99	1	1	1	0	0	1	80	1	1	2
345	99	0	0	1	0	0	1	20	1	1	0
346	99	0	0	2	0	0	2	20	1	1	11
347	99	0	0	1	0	0	10	40	2	3	7

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
348	99	0	0	1	0	0	6	-2	2	1	0
349	99	0	0	1	0	0	2	95	1	1	0
350	99	0	0	1	0	0	5	25	2	3	12
351	99	0	0	1	0	2	1	50	1	1	5
352	99	0	0	1	0	0	1	10	2	1	9
353	99	0	0	1	0	0	3	90	1	3	0
354	99	0	0	2	0	0	6	75	2	2	3
355	99	0	0	1	0	0	9	40	2	3	5
356	99	0	0	1	0	0	5	20	2	1	6
357	99	0	0	1	0	0	3	50	1	2	3
358	99	0	0	1	0	0	3	80	1	1	1
359	99	0	0	1	0	0	6	100	3	3	5
361	99	0	0	1	0	0	5	30	1	1	0
362	99	0	0	1	0	0	5	0	2	2	7
363	99	0	0	1	0	0	5	0	2	2	0
364	99	0	0	1	0	0	6	15	1	1	5
365	99	0	0	1	0	0	3	50	1	1	0
366	99	0	0	1	0	0	3	100	2	2	6
367	99	0	0	1	0	0	2	20	1	1	0
368	99	0	0	2	0	0	3	25	2	2	9
369	99	0	0	1	2	0	0	30	2	3	0
370	0	0	0	1	0	0	2	33	2	1	12
371	99	0	0	1	0	0	2	20	2	1	2
372	99	0	0	1	0	1	3	80	2	3	7
373	0	0	0	1	1	0	2	50	2	2	0
374	99	0	0	1	0	1	5	80	2	2	4
375	99	0	0	1	0	0	1	100	2	2	16
376	99	0	0	2	0	0	7	30	2	3	12
377	99	0	0	1	0	0	2	50	2	2	2
378	99	0	0	1	0	0	8	100	1	1	4
379	0	0	0	1	0	0	13	100	1	1	1
380	99	0	0	0	0	0	4	100	2	2	0
381	99	0	0	1	0	0	10	70	1	1	0
382	99	0	0	1	0	1	0	5	2	3	5
383	99	0	0	1	0	0	4	80	3	3	3
384	99	0	0	1	0	0	5	40	3	3	2
385	99	0	0	1	0	0	6	50	2	1	0
386	99	2	2	1	0	0	3	50	2	2	6
387	99	0	0	1	0	0	3	30	2	1	2
388	0	0	0	1	0	0	11	100	2	2	0
389	0	0	0	1	0	0	3	100	3	3	0
390	99	0	0	2	0	0	2	20	1	2	0
391	99	0	0	1	0	1	5	75	3	3	1
393	99	0	0	1	0	1	3	35	1	1	8
394	99	0	0	2	0	0	7	35	2	2	8
395	99	0	0	0	0	0	3	20	1	1	0
396	99	0	0	1	0	0	2	80	3	3	10
397	0	0	0	3	0	2	6	15	2	2	7
398	0	0	0	1	0	0	2	50	3	3	0
399	0	0	0	1	0	0	9	20	2	2	3
400	99	0	0	1	0	4	0	0	1	1	2
401	1	0	1	1	2	1	3	20	1	1	8
402	99	0	0	1	0	0	2	0	1	1	1
403	0	0	0	1	0	0	4	60	1	1	4
404	0	1	1	1	0	0	3	5	2	2	9

Raw Data (continued)

ID Number	PRC	PEOC	TOC	OHI	CMT	IMPACT	OJ	OB	MXARCH	MDARCH	MXCRD
405	99	0	0	1	0	0	7	40	1	1	0
406	0	0	0	1	0	0	9	60	1	1	4
407	99	0	0	1	0	0	2	60	2	2	8
408	99	0	0	1	0	0	5	100	2	2	1
409	99	0	0	2	0	0	0	0	2	1	9
410	99	0	0	1	0	0	3	100	3	3	0
411	99	0	0	1	0	0	3	25	1	1	4
412	99	0	0	1	0	0	5	-2	1	1	7
413	99	1	1	1	0	0	3	50	1	2	9
414	99	0	0	1	0	0	2	90	3	3	4
415	2	0	2	1	3	0	2	5	2	3	0
416	99	0	0	1	0	0	3	40	2	3	5
417	99	0	0	1	0	0	3	50	1	1	4
418	99	0	0	1	0	0	0	0	2	1	2
419	0	0	0	2	0	0	4	100	1	3	2

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
1	4	0	0	1	22	1	0	2	86	60
2	0	0	0	0	32	0	2	2	92	56
3	4	1	1	0	20	1	0	2	84	64
4	7	0	2	0	32	0	1	2	85	64
6	2	0	0	1	18	1	0	1	80	58
7	4	1	0	1	34	1	0	1	92	58
8	16	0	1	0	30	1	2	2	89	52
9	7	0	0	1	9	1	0	2	87	58
10	10	1	0	2	37	1	0	1	90	61
11	14	0	0	2	23	1	2	2	81	56
12	0	0	0	0	15	0	2	2	92	60
13	3	0	0	1	32	1	1	2	89	61
14	15	0	0	1	21	0	1	2	84	66
17	9	0	0	2	24	1	2	2	86	61
18	3	0	0	0	18	0	1	2	88	62
19	0	1	2	1	31	1	0	2	92	60
20	0	1	0	0	26	1	2	0	94	62
21	13	0	1	2	25	1	2	2	87	65
22	3	0	0	1	22	1	1	2	87	62
23	1	1	0	0	17	1	0	1	93	55
24	6	0	0	2	22	1	0	2	92	53
25	4	0	0	0	26	1	0	1	89	58
27	9	0	0	0	5	0	0	2	89	58
28	2	0	2	1	17	1	0	2	87	58
29	0	0	0	0	25	1	2	2	86	56
30	6	0	0	2	17	0	0	2	86	57
31	10	1	0	0	38	1	2	2	98	52
32	3	0	0	1	10	1	0	1	90	57
33	7	0	0	1	14	1	0	2	87	59
34	5	1	0	1	26	1	0	1	91	57
36	0	1	0	2	34	1	0	2	92	60
37	4	0	2	2	15	1	1	1	88	59
38	2	0	0	0	11	0	0	2	87	57
39	0	0	0	0	10	1	0	2	92	54
41	0	0	0	1	18	0	1	2	86	58
42	15	0	0	0	18	0	2	2	89	53
43	3	0	0	0	30	1	2	2	80	59
44	12	0	0	2	31	1	2	2	89	58
45	5	0	0	1	18	1	1	2	85	58
46	4	1	0	0	25	0	2	2	85	58
47	0	0	0	1	19	1	2	2	95	50
48	1	0	2	0	22	1	0	2	86	58
49	10	1	0	0	9	1	1	2	84	62
50	6	0	2	2	25	1	1	2	83	68
51	10	0	0	0	18	1	0	0	89	64
52	11	0	0	0	30	1	1	2	87	59
54	19	0	0	1	29	0	2	2	90	54
56	0	0	0	2	22	0	1	2	86	61
58	3	0	0	0	15	1	0	2	87	60
59	9	0	0	2	20	1	2	2	88	61
60	2	0	0	2	23	1	0	2	86	58
61	6	0	0	1	23	0	0	2	74	58
62	0	0	2	0	12	1	0	2	98	47
63	1	0	1	0	24	0	0	2	88	56
64	14	0	0	0	24	0	0	1	84	55

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
65	13	0	1	0	38	1	0	2	75	60
66	2	0	0	0	22	1	1	1	85	63
67	2	0	0	1	13	1	0	1	89	60
68	0	1	1	0	26	0	0	2	88	61
69	0	0	0	0	17	1	0	2	90	56
70	0	0	0	0	12	1	0	2	93	56
71	0	0	0	2	14	1	1	2	83	64
72	0	0	1	2	6	1	2	2	89	57
73	12	0	1	2	35	0	2	2	75	63
74	7	0	0	2	21	1	0	2	88	56
75	5	0	2	2	25	1	2	2	88	59
76	4	1	0	1	16	1	0	0	96	64
77	1	0	1	1	16	1	0	2	87	62
78	5	0	1	0	27	1	0	2	86	58
79	5	0	0	0	26	0	0	2	88	58
80	3	0	1	1	23	1	0	2	92	52
81	0	0	0	0	11	1	1	2	84	65
82	4	0	2	2	21	0	0	2	73	60
83	0	0	1	1	38	1	0	2	84	61
84	2	0	0	0	20	1	0	2	91	55
85	5	0	1	0	36	1	0	2	85	57
86	0	0	0	1	20	1	0	2	84	62
87	3	0	0	0	22	1	0	2	97	46
88	1	0	2	2	39	1	1	2	81	61
89	5	1	0	1	33	1	0	2	85	57
90	0	0	0	0	14	1	0	2	87	60
91	6	0	0	2	36	1	0	2	84	58
92	0	0	0	0	22	0	1	2	92	57
93	0	0	0	0	30	1	0	2	87	58
94	0	0	0	2	22	1	2	2	93	53
95	1	0	1	0	25	1	0	2	87	62
96	3	0	2	0	20	1	0	2	87	59
97	3	0	0	0	30	0	1	2	84	68
98	0	0	0	2	18	1	2	0	94	52
99	2	0	2	1	13	1	0	1	87	61
100	1	1	1	0	19	1	2	2	88	57
101	4	0	0	0	40	0	0	2	90	56
102	8	0	0	0	13	1	0	1	88	57
103	5	1	0	0	20	1	2	2	89	56
104	0	0	0	0	40	1	0	2	89	58
105	8	1	1	2	27	1	1	2	95	64
106	6	0	0	1	12	1	0	2	85	61
107	0	0	0	2	17	1	2	1	90	60
108	0	0	1	0	25	1	0	2	83	63
109	0	0	0	0	8	1	0	2	89	57
110	7	0	2	2	34	1	0	2	76	68
111	5	1	0	2	40	0	0	2	87	60
112	1	0	0	2	20	1	2	2	92	55
113	6	1	0	2	45	1	1	2	87	60
114	10	1	0	1	4	1	0	1	94	51
115	0	1	0	0	36	0	1	2	89	62
116	5	0	0	0	13	1	0	1	88	61
117	4	1	0	0	20	0	0	2	95	51
118	12	0	1	0	18	1	0	1	90	57
119	0	0	0	1	18	0	0	0	90	54

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
120	1	0	1	0	10	1	0	0	90	57
121	4	1	0	0	16	0	0	1	89	54
122	8	0	1	0	14	1	1	2	87	62
123	0	0	1	1	12	1	0	2	89	55
124	3	0	1	2	20	1	0	2	92	57
125	7	0	0	0	25	1	0	1	92	53
126	2	0	0	0	16	1	0	2	82	60
127	4	1	0	0	19	0	1	2	90	55
128	6	0	2	0	17	1	0	2	94	56
129	2	0	2	2	22	1	1	2	91	59
130	0	1	0	0	24	0	1	2	88	63
131	6	0	0	2	17	0	1	2	92	65
132	4	0	2	2	25	0	1	2	84	69
133	7	1	0	2	26	0	0	1	94	59
134	4	1	0	0	24	0	1	2	90	67
135	5	1	2	2	31	0	1	2	90	56
136	9	0	0	1	33	0	0	2	87	62
137	3	0	0	2	24	1	0	1	89	62
138	2	0	2	2	24	1	0	1	88	59
139	9	0	0	0	15	1	2	1	91	54
140	4	0	0	0	19	1	0	1	92	57
141	2	0	0	2	11	1	0	2	89	61
142	2	1	0	0	14	0	0	2	87	61
143	2	0	2	0	8	1	0	2	88	57
144	2	0	0	0	21	0	0	2	79	62
145	3	0	1	0	27	1	2	2	85	61
146	2	0	0	0	18	0	0	2	86	62
147	6	0	1	2	12	0	1	1	91	63
148	2	0	1	2	24	0	0	2	78	63
149	3	1	0	1	19	1	0	2	91	56
150	5	0	0	2	17	1	1	1	90	60
151	0	0	2	2	48	1	1	0	91	56
152	3	0	1	0	27	1	0	2	85	63
153	3	0	0	2	15	1	2	2	89	65
154	2	0	0	0	20	0	2	2	87	60
155	0	0	2	2	27	1	1	0	90	56
156	4	0	0	2	17	0	2	2	94	55
157	0	0	2	0	22	1	0	1	88	57
158	5	1	1	0	10	0	1	2	84	63
159	2	0	2	2	24	0	0	2	88	56
160	0	0	0	0	17	1	0	2	93	54
161	8	0	2	1	25	0	1	2	91	59
162	9	0	0	0	19	1	1	2	84	64
165	5	0	0	2	13	0	0	2	83	66
166	3	1	0	0	12	1	1	2	90	59
167	2	1	0	1	24	0	0	2	85	66
168	6	1	0	1	13	1	0	1	89	58
169	6	0	0	0	23	1	0	1	86	56
170	3	0	0	1	24	1	0	1	92	52
171	7	0	0	2	12	1	1	2	87	59
172	0	0	2	0	14	0	1	2	96	55
173	3	0	0	0	28	0	0	1	90	53
174	2	0	1	0	17	0	1	2	88	61
175	2	0	0	2	30	1	1	0	87	58
176	5	0	2	2	15	0	0	1	92	53

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
177	7	0	2	1	23	0	0	2	86	61
178	0	0	0	1	12	1	1	1	85	63
179	0	0	0	0	23	0	0	2	82	63
180	2	0	2	0	19	0	0	1	89	56
181	0	0	0	2	3	1	0	1	93	53
182	0	0	0	0	10	0	1	1	93	53
183	0	0	1	0	24	1	2	2	86	63
184	10	1	0	0	15	1	0	1	87	61
185	1	0	2	0	21	0	0	2	92	56
186	0	1	0	2	33	0	1	2	83	67
187	0	0	0	0	36	1	0	2	86	60
188	5	0	2	2	32	0	1	2	85	61
189	0	0	0	0	12	1	2	1	92	57
190	0	0	0	0	29	1	2	2	90	60
191	6	1	1	0	15	1	0	1	97	53
192	5	0	1	1	25	1	1	2	83	66
193	0	0	0	1	30	0	1	0	87	61
194	4	0	1	0	14	1	0	2	86	61
195	4	0	2	2	10	1	1	2	79	68
196	4	0	0	1	11	1	0	2	91	57
197	4	0	0	0	22	1	0	2	86	61
198	0	0	0	0	7	1	0	1	90	58
199	0	1	1	0	16	1	0	1	92	55
200	0	1	0	2	32	1	0	2	93	57
201	11	1	0	1	25	1	1	1	91	55
202	0	0	0	0	26	1	0	1	93	65
203	9	1	0	0	16	1	2	2	90	55
204	8	0	2	2	29	0	0	2	76	73
205	2	0	0	2	28	1	0	2	87	58
206	1	0	0	1	27	0	1	2	82	67
207	6	1	0	0	16	0	1	1	90	63
208	6	0	0	2	40	0	0	1	86	58
209	4	0	0	2	28	1	0	0	86	62
210	5	0	0	0	28	1	1	2	87	60
211	5	0	2	2	28	0	1	2	86	63
212	2	0	0	0	30	0	0	2	90	60
213	0	1	1	2	40	1	1	2	90	61
214	5	0	0	1	12	0	1	2	84	58
215	3	0	0	0	8	0	0	2	92	56
216	0	0	2	1	32	0	1	2	71	66
217	0	0	0	1	39	1	0	1	90	57
218	5	0	0	2	11	0	0	1	91	58
219	1	0	0	2	29	0	0	2	78	58
220	0	0	0	2	23	0	0	1	91	58
221	7	1	2	1	19	1	1	2	80	68
222	1	1	0	0	31	0	0	0	94	53
223	2	0	0	0	18	0	0	2	75	66
224	0	1	0	0	39	0	1	2	88	70
225	5	0	0	2	24	0	0	2	86	59
226	0	0	1	1	19	0	1	2	77	66
227	7	0	2	0	31	0	1	2	94	59
228	3	0	0	1	22	0	2	1	94	49
229	0	0	0	2	16	1	0	2	88	56
230	2	0	1	0	8	1	0	1	94	53
231	0	0	0	2	12	1	0	1	89	62

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
232	0	0	0	0	12	0	0	1	82	61
233	3	0	0	0	16	0	0	1	88	61
234	2	0	0	1	21	1	0	2	86	59
235	5	0	0	2	26	1	1	0	78	60
236	2	0	0	0	22	0	0	2	86	61
237	3	0	0	1	12	1	0	2	90	59
238	0	0	0	2	21	1	2	2	81	50
239	2	0	0	0	12	1	0	1	88	54
240	1	0	0	1	17	1	0	1	80	53
241	4	0	0	1	11	1	0	2	80	75
242	0	0	0	1	16	1	1	1	94	59
243	0	0	0	0	31	1	2	2	81	59
244	0	0	1	0	18	1	0	1	90	53
245	4	1	2	0	19	1	0	1	94	52
246	6	0	0	2	31	1	0	1	81	55
247	10	0	2	1	35	1	0	2	75	67
248	2	0	0	2	20	1	1	0	90	61
249	0	1	0	2	21	1	0	2	82	65
250	0	1	0	2	25	0	1	2	87	62
251	9	0	2	1	30	1	1	2	85	69
252	7	0	1	0	31	1	0	1	89	67
253	0	0	0	0	15	1	0	2	87	58
254	0	0	0	0	28	1	0	2	87	59
255	2	0	0	0	18	1	0	1	93	53
256	4	1	0	1	14	1	0	1	92	58
257	5	0	0	0	31	1	0	2	80	68
258	0	0	2	2	19	1	0	1	88	60
259	0	0	0	0	7	0	0	2	82	65
260	7	0	0	0	11	1	0	2	84	64
261	3	1	0	2	46	1	0	2	88	60
262	4	1	1	0	19	1	0	2	86	63
263	2	0	0	0	22	0	1	2	88	58
264	4	0	0	2	22	1	1	2	85	62
265	7	1	2	2	27	0	1	1	91	59
266	0	0	1	0	25	1	0	1	87	56
267	3	0	0	0	9	1	0	2	90	57
268	0	0	0	0	13	1	1	1	87	62
269	6	1	1	0	25	0	1	1	90	58
270	0	0	0	2	23	1	0	1	85	57
271	0	0	2	2	15	1	0	2	92	63
272	5	1	0	0	16	1	0	0	91	58
273	0	0	0	0	24	0	0	1	89	58
274	6	0	0	2	31	1	0	2	90	57
275	3	0	2	0	13	1	2	1	92	54
276	3	0	2	2	20	1	0	2	84	59
277	2	0	2	2	25	1	1	2	83	64
278	6	1	0	2	45	1	1	2	89	57
279	2	0	0	0	38	0	1	2	94	54
281	4	0	1	0	35	1	1	2	96	49
282	0	0	2	1	15	1	0	2	90	55
283	6	0	0	1	20	1	0	1	91	59
284	8	0	2	1	31	0	1	2	86	60
286	8	0	0	0	36	1	1	2	79	71
287	3	0	0	1	17	1	0	1	92	58
288	0	0	1	1	19	0	1	2	86	57

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
289	3	1	0	0	32	0	1	2	83	63
290	0	0	2	0	9	1	0	2	92	53
291	6	0	0	0	11	1	0	2	88	58
292	0	0	0	0	11	1	0	1	86	59
293	4	0	0	1	20	1	0	2	89	56
294	3	0	0	0	14	1	1	2	87	60
295	3	1	2	0	29	1	1	2	86	59
296	1	0	0	0	29	1	0	2	83	61
297	3	1	0	2	14	0	1	1	87	62
298	3	0	0	2	17	0	1	1	84	63
300	10	1	0	1	42	1	1	2	84	62
301	0	0	0	0	32	1	0	2	83	57
302	0	0	0	0	13	1	0	2	91	53
303	4	0	0	1	21	1	2	1	91	52
305	3	0	0	0	41	0	1	2	80	67
306	3	0	0	0	29	1	1	2	89	59
307	0	0	0	0	13	1	0	2	90	70
308	1	0	0	0	18	1	0	2	90	55
309	0	0	0	1	26	1	0	2	86	59
310	4	0	0	0	20	1	0	1	91	53
311	2	0	2	2	13	1	0	2	82	63
313	1	0	1	2	25	1	2	2	83	62
314	9	1	0	0	42	0	1	2	82	66
315	3	1	0	0	21	1	0	0	91	55
316	4	0	2	2	18	1	0	2	87	58
317	2	0	0	0	19	0	1	1	80	68
318	2	0	0	0	21	1	0	1	87	58
319	9	1	0	0	21	0	1	2	86	60
320	2	0	0	0	22	1	0	1	89	58
321	0	0	0	0	11	1	0	2	93	54
322	3	1	1	0	26	1	1	2	85	66
323	4	0	0	0	18	1	1	2	85	61
324	0	0	0	0	18	1	0	2	90	59
325	10	1	0	2	22	0	1	1	97	63
326	0	0	0	2	17	1	1	1	88	57
327	5	0	0	0	22	0	0	2	88	61
328	3	1	0	2	11	1	2	2	82	59
329	3	0	0	0	17	0	0	1	93	56
330	5	1	2	0	46	1	0	2	86	58
331	1	0	0	0	32	1	2	2	91	53
332	6	1	0	1	46	0	1	1	87	61
333	4	0	1	0	28	1	0	2	88	58
334	5	0	0	1	20	1	2	2	86	60
335	5	0	0	0	17	1	0	2	83	62
336	0	0	0	0	14	1	0	2	90	57
337	7	0	0	2	23	1	1	1	86	62
338	2	1	2	2	39	1	0	2	81	67
339	0	0	2	0	23	0	1	2	88	62
340	0	0	0	1	7	1	0	2	92	53
341	7	0	0	0	29	1	0	2	88	51
342	2	0	0	0	16	1	0	2	85	62
344	2	0	2	0	25	1	0	2	84	62
345	0	0	0	0	9	1	0	2	86	59
346	12	0	1	1	30	1	0	2	90	62
347	8	0	2	0	33	0	0	1	88	54

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
348	0	0	0	0	31	0	0	2	86	62
349	0	0	1	0	12	1	0	2	87	56
350	6	0	0	0	20	1	1	1	80	55
351	4	0	2	0	24	1	0	2	85	60
352	4	0	2	1	26	1	0	1	84	63
353	4	0	0	0	19	1	2	2	86	61
354	7	0	0	1	24	0	1	2	87	62
355	13	0	2	1	24	0	0	2	87	61
356	7	1	0	0	23	1	0	1	82	51
357	7	0	0	2	15	1	0	2	85	58
358	1	1	0	0	20	1	0	2	87	59
359	4	0	0	0	44	1	2	2	84	61
361	2	0	1	1	19	0	0	2	87	60
362	7	0	0	2	22	0	1	2	85	64
363	0	0	2	0	20	0	1	2	90	63
364	5	1	0	2	28	0	1	2	82	64
365	0	0	0	1	16	1	0	2	93	53
366	7	0	2	2	30	0	0	2	90	57
367	2	1	1	2	18	1	0	1	88	55
368	1	0	2	0	36	1	0	2	75	60
369	0	1	0	1	44	1	0	1	98	48
370	8	1	2	1	21	1	1	1	85	61
371	2	0	0	0	14	1	0	2	82	64
372	10	0	0	1	37	1	0	2	86	59
373	4	0	0	0	25	1	0	2	87	63
374	12	0	0	0	24	1	0	2	85	61
375	16	0	1	0	28	1	0	1	88	59
376	0	0	2	0	36	0	0	2	84	59
377	4	0	0	0	11	1	0	1	90	54
378	9	0	0	1	29	0	0	2	89	55
379	0	1	0	2	42	1	2	2	87	59
380	0	0	2	0	14	1	0	1	91	54
381	0	0	0	0	28	1	1	2	83	62
382	3	1	0	0	21	1	1	1	90	58
383	4	0	2	2	29	1	0	2	90	62
384	2	1	2	2	22	0	1	2	90	59
385	3	0	0	0	17	0	1	2	80	65
386	8	0	1	1	32	1	0	2	86	60
387	1	1	2	1	27	1	0	1	92	64
388	3	0	0	1	40	0	0	2	90	54
389	0	0	0	0	29	1	0	2	94	51
390	0	0	0	0	1	1	0	1	90	56
391	6	0	0	2	14	1	0	2	92	55
393	8	0	1	0	19	1	0	1	95	55
394	3	0	2	2	27	1	0	2	87	57
395	0	0	1	1	11	1	0	2	87	58
396	6	1	0	0	30	1	0	2	87	57
397	14	0	0	0	23	1	0	2	81	55
398	0	0	0	0	15	1	0	1	89	55
399	4	0	0	1	15	0	2	2	90	55
400	0	0	0	1	31	1	0	2	93	54
401	3	0	0	2	23	1	0	2	88	56
402	1	0	0	0	25	1	0	2	90	56
403	2	0	2	0	21	0	0	2	87	50
404	3	1	2	1	36	1	1	2	87	62

Raw Data (continued)

ID Number	MDCRD	CXB	MXMID	MDMID	PAR	LIPCOMP	LFH	PROFILE	FAPLAN	YAXIS
405	0	0	0	2	27	1	0	1	87	60
406	3	1	0	1	38	0	0	1	85	60
407	10	0	0	1	15	1	1	2	90	58
408	1	0	0	1	25	1	0	2	90	58
409	6	1	1	1	38	1	0	2	84	64
410	0	0	0	1	25	1	0	2	90	55
411	7	0	1	0	22	1	0	2	91	54
412	3	0	0	0	29	0	2	2	85	59
413	8	0	2	2	23	1	0	2	85	59
414	8	0	0	0	40	1	2	2	85	58
415	4	0	0	0	15	1	1	1	88	60
416	6	1	0	0	21	0	1	2	88	62
417	3	0	0	1	20	1	1	2	88	62
418	5	1	2	0	15	1	2	1	80	53
419	5	0	0	0	18	1	2	2	91	53

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
1	7	119	26	9	82	79	3	123	88	26	97	57
2	3	111	34	15	89	87	2	125	93	17	107	56
3	14	135	14	5	81	79	2	108	85	31	86	63
4	4	106	36	13	80	77	3	122	88	34	96	50
6	9	126	20	6	80	78	2	115	87	23	96	61
7	3	129	22	6	83	81	2	119	93	28	86	66
8	2	156	14	3	81	75	6	94	90	19	88	75
9	9	123	22	5	79	76	3	117	89	24	98	58
10	5	134	20	5	84	81	3	110	90	35	82	63
11	13	145	12	1	81	75	6	.	.	20	95	65
12	5	130	16	11	80	76	4	115	90	25	87	68
13	10	135	13	8	85	78	7	111	97	32	82	66
14	7	135	20	13	81	80	1	.	.	35	87	58
17	12	125	22	6	76	68	8	104	96	23	97	60
18	15	90	10	4	87	86	1	122	86	35	91	54
19	6	116	33	11	86	80	6	115	93	27	100	53
20	3	118	23	8	89	86	3	116	91	22	92	66
21	9	127	17	5	81	78	3	107	90	27	90	63
22	14	124	24	8	84	77	7	110	95	31	95	54
23	0	142	14	-1	81	83	-2	114	87	17	86	87
24	2	135	15	2	80	78	2	117	89	18	90	72
25	10	135	14	5	76	75	1	111	89	25	88	67
27	3	130	26	5	83	80	3	.	.	26	97	57
28	5	126	22	6	74	73	1	115	84	24	95	61
29	11	128	22	6	82	78	4	107	90	21	100	59
30	11	131	13	8	78	76	2	114	87	22	93	65
31	0	140	10	-5	88	95	-7	124	90	18	84	78
32	7	116	32	8	84	78	6	118	94	21	107	52
33	9	119	25	9	83	78	5	117	97	27	96	57
34	4	123	25	11	85	83	2	120	93	24	94	62
36	6	130	24	3	81	79	2	111	85	20	98	62
37	5	127	24	7	74	75	-1	115	90	26	92	62
38	8	126	18	5	87	85	2	119	91	24	91	65
39	6	124	24	2	87	83	4	116	96	19	101	60
41	11	133	16	7	84	78	6	110	89	23	93	54
42	7	133	17	5	81	76	5	122	95	16	97	67
43	5	131	24	8	85	80	5	110	90	27	92	62
44	8	127	10	8	84	84	0	122	91	23	85	72
45	5	136	23	4	74	70	4	115	84	24	94	62
46	9	119	32	10	84	77	7	105	85	20	114	46
47	2	130	20	4	86	82	4	116	99	17	65	68
48	9	124	23	7	77	75	2	115	87	27	93	60
49	12	138	18	4	81	78	3	109	93	25	96	55
50	13	105	34	9	94	82	12	119	97	33	98	49
51	8	122	26	6	82	76	6	115	89	20	105	55
52	7	137	23	7	78	72	6	108	90	27	81	72
54	5	112	23	13	79	75	4	102	89	27	97	56
56	9	110	23	13	83	77	6	118	93	30	102	48
58	10	124	23	6	80	77	3	111	88	29	95	56
59	7	134	18	8	79	75	4	117	93	28	80	72
60	9	132	26	4	79	75	4	105	94	25	98	57
61	10	131	16	10	75	74	1	114	84	18	82	80
62	-1	129	17	4	81	81	0	127	97	11	92	77
63	8	133	24	6	79	73	6	106	94	18	104	58
64	2	135	22	5	82	83	-1	118	93	19	86	75

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
65	10	110	30	18	78	74	4	120	90	20	110	70
66	17	132	24	8	81	78	3	105	88	28	97	55
67	7	132	17	2	87	82	5	114	93	21	93	66
68	10	136	16	5	81	77	4	109	93	27	88	65
69	18	144	18	4	83	79	4	105	93	32	78	70
70	6	106	33	12	93	87	6	125	101	22	108	50
71	7	107	37	15	78	72	6	119	91	33	101	46
72	10	144	17	3	83	77	6	100	94	19	98	63
73	2	139	5	6	79	76	3	104	84	31	86	63
74	8	135	17	5	79	75	4	122	92	21	97	62
75	5	132	18	6	79	74	5	107	93	20	88	72
76	3	142	5	4	82	80	2	114	97	19	85	76
77	10	130	18	5	76	74	2	113	89	31	87	62
78	13	145	11	4	81	76	5	101	90	25	89	66
79	6	128	27	7	83	78	5	112	88	21	97	62
80	-3	128	24	4	79	76	3	121	92	17	94	69
81	17	124	21	11	85	78	7	108	93	36	93	51
82	10	136	20	7	79	72	7	102	90	26	95	69
83	18	134	20	4	82	79	3	107	87	30	88	62
84	7	141	26	7	80	76	4	104	94	21	98	61
85	10	129	17	5	88	82	6	114	89	17	100	63
86	12	152	10	3	91	83	8	90	91	28	91	61
87	-6	109	29	6	81	81	0	138	95	14	99	67
88	11	112	27	11	81	74	7	121	87	30	97	53
89	15	133	20	8	75	72	3	110	88	22	96	62
90	11	134	14	4	77	75	2	110	88	30	84	60
91	12	130	22	3	73	70	3	110	84	28	96	56
92	-3	125	28	10	86	79	7	120	98	17	98	65
93	3	119	24	7	78	74	4	123	88	13	103	64
94	1	125	22	6	83	79	4	122	94	17	95	68
95	12	133	19	2	80	77	3	107	89	34	87	59
96	4	130	8	8	76	76	0	116	89	30	84	66
97	12	117	30	10	84	77	7	113	90	33	99	48
98	0	129	17	4	84	87	-3	123	90	14	94	72
99	11	129	18	5	78	75	3	120	87	28	92	60
100	8	131	22	6	80	77	3	114	90	28	92	70
101	6	131	16	7	86	82	4	116	93	24	90	66
102	4	144	16	5	78	78	0	109	88	25	83	72
103	3	142	22	2	81	76	5	105	90	16	98	56
104	7	140	13	6	81	76	5	107	90	26	85	69
105	5	111	33	16	87	86	1	126	86	28	99	53
106	9	124	23	7	77	76	1	114	86	28	87	65
107	9	132	20	7	87	82	5	111	89	27	94	59
108	14	126	15	3	80	76	4	115	85	26	95	58
109	11	122	22	8	86	83	3	115	90	27	98	55
110	15	150	16	1	80	75	5	91	81	31	91	58
111	3	142	13	-2	80	76	4	109	87	27	87	70
112	3	133	20	3	84	82	2	112	92	20	93	67
113	8	127	22	10	72	71	1	112	87	30	91	59
114	2	143	13	5	80	78	2	105	93	20	97	63
115	6	116	24	10	82	78	4	125	88	37	84	71
116	5	140	10	27	82	80	2	108	87	31	90	60
117	3	137	11	7	82	79	3	119	97	17	89	74
118	2	139	14	5	78	78	0	116	88	20	85	75
119	7	139	15	4	83	79	4	110	87	19	92	69

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
120	9	134	15	3	78	77	1	113	89	25	88	67
121	7	125	19	5	82	79	3	120	91	18	99	63
122	14	148	6	4	80	74	6	102	92	33	76	71
123	5	104	36	10	84	78	6	125	96	18	114	48
124	2	119	32	8	90	84	6	119	98	28	96	56
125	1	160	11	0	81	78	3	99	93	14	88	78
126	8	128	14	6	85	81	4	107	90	20	100	60
127	4	132	22	4	80	75	5	98	92	24	95	61
128	9	140	7	4	87	84	3	115	97	23	83	74
129	10	126	15	11	88	83	5	120	96	30	84	66
130	6	136	13	4	81	78	3	114	91	28	82	71
131	11	127	20	6	84	82	2	115	93	16	101	62
132	8	120	26	5	76	71	5	103	91	35	88	51
133	5	144	12	-3	81	80	1	109	82	18	89	73
134	7	128	28	7	75	70	5	109	87	40	86	54
135	9	125	22	5	82	76	6	110	92	25	96	59
136	11	99	30	9	87	77	10	130	96	32	99	49
137	3	130	26	2	75	72	3	107	90	23	100	37
138	4	125	23	6	81	79	2	118	89	22	95	63
139	5	159	4	-2	89	87	2	101	90	12	88	80
140	4	123	25	6	86	83	3	119	93	23	96	61
141	9	123	26	7	82	77	5	113	93	27	98	55
142	12	113	30	5	83	76	7	119	87	32	82	66
143	8	121	22	8	80	79	1	120	89	19	101	60
144	5	150	24	2	82	77	5	90	89	18	89	73
145	10	113	10	9	80	78	2	119	87	33	100	45
146	8	143	22	0	77	73	4	109	88	20	95	65
147	8	127	14	7	84	79	5	116	88	29	89	62
148	10	124	25	5	82	78	4	111	91	26	100	55
149	8	139	14	8	82	74	8	116	94	26	84	70
150	4	123	22	10	82	79	3	122	93	27	89	64
151	4	132	22	-1	79	79	0	100	92	21	94	65
152	10	96	31	12	85	78	7	133	93	29	101	48
153	11	159	6	0	83	79	4	94	91	24	97	73
154	12	155	2	5	79	76	3	91	89	25	89	66
155	7	127	18	6	80	81	-1	119	89	26	91	63
156	2	117	28	9	89	87	2	124	94	20	99	61
157	3	126	30	9	83	79	4	112	92	18	105	58
158	12	116	29	13	82	76	6	114	90	33	98	49
159	9	100	38	8	85	77	8	123	95	19	118	43
160	5	130	19	2	84	81	3	118	86	22	92	66
161	5	123	24	3	86	81	5	119	95	27	93	60
162	11	100	34	11	83	80	3	126	87	36	98	46
165	16	108	34	16	80	73	7	117	90	38	98	45
166	10	100	31	15	93	83	10	128	97	23	108	49
167	10	129	26	9	86	81	5	125	91	26	99	55
168	8	121	24	6	81	78	3	118	92	31	91	58
169	8	123	24	10	81	77	4	117	89	21	100	59
170	6	157	20	5	80	80	0	109	91	9	116	65
171	7	120	28	8	79	75	4	116	90	21	104	55
172	4	99	29	11	81	82	-1	139	94	23	99	58
173	5	129	15	2	75	73	2	123	91	20	89	71
174	10	119	27	11	83	76	7	114	97	32	95	53
175	5	117	20	13	83	79	4	126	91	23	94	63
176	3	123	25	10	82	80	2	126	93	17	100	63

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
177	2	126	34	9	84	80	4	106	90	12	114	54
178	11	145	17	2	85	83	2	95	86	25	96	59
179	11	101	31	17	78	76	2	125	86	37	97	45
180	6	144	13	3	78	77	1	108	87	21	87	72
181	4	126	18	4	80	79	1	121	92	17	96	67
182	12	139	12	3	81	79	2	112	94	19	90	71
183	18	125	14	10	84	79	5	112	91	35	104	57
184	8	138	19	2	76	73	3	103	89	30	89	61
185	6	132	12	1	82	80	2	119	95	17	92	71
186	13	126	24	9	85	80	5	110	87	33	93	55
187	6	121	13	11	74	71	3	119	91	24	96	60
188	10	128	21	6	76	74	2	114	87	30	86	64
189	8	142	8	7	79	75	4	103	95	15	100	65
190	10	120	10	7	86	85	1	103	92	18	107	55
191	2	136	7	3	82	84	-2	126	93	16	84	80
192	21	123	16	10	78	73	5	111	89	39	86	55
193	13	90	29	18	85	79	6	136	94	25	107	48
194	9	119	30	8	84	76	8	111	91	26	104	50
195	12	112	27	7	79	77	2	120	86	31	98	51
196	6	111	29	11	91	86	5	126	97	11	114	55
197	7	127	18	9	80	77	3	123	89	26	91	63
198	11	130	10	1	78	77	1	108	87	29	83	68
199	10	132	10	3	80	77	3	120	95	26	83	71
200	2	125	25	6	80	81	-1	120	85	18	99	63
201	11	134	14	4	73	75	-2	119	87	24	90	66
202	1	124	18	5	82	81	1	121	94	22	91	67
203	7	123	15	10	82	77	5	119	94	22	93	65
204	19	121	24	15	87	77	10	107	85	42	91	48
205	10	111	25	11	84	77	7	119	93	20	105	55
206	14	125	19	10	85	82	3	112	94	39	84	57
207	5	145	11	2	77	76	1	101	87	33	75	72
208	7	149	7	-1	75	73	2	110	91	31	84	65
209	9	103	33	15	90	85	5	125	93	26	106	48
210	6	138	20	6	77	73	4	110	90	30	87	63
211	10	132	23	3	83	76	7	101	87	34	87	59
212	7	126	27	1	86	79	7	110	90	25	100	55
213	8	116	22	10	84	79	5	125	96	29	91	60
214	5	122	27	6	89	84	5	119	98	20	99	61
215	6	126	22	6	77	73	4	118	83	27	90	63
216	10	123	29	11	78	71	7	116	89	30	98	52
217	10	133	6	9	81	79	2	123	92	21	84	75
218	7	140	11	2	81	81	0	112	90	21	87	72
219	11	130	20	4	83	76	7	99	92	28	92	60
220	4	115	30	5	84	83	1	113	89	19	105	56
221	19	127	20	9	87	80	7	107	90	34	94	52
222	4	111	31	13	82	76	6	128	99	25	97	58
223	15	132	18	5	77	73	4	103	84	30	93	57
224	15	144	10	4	85	78	7	114	92	27	95	68
225	9	127	22	6	85	80	5	111	95	23	92	60
226	11	130	23	6	78	76	2	106	85	39	84	57
227	11	100	38	10	78	73	5	123	93	25	113	42
228	2	138	19	4	78	77	1	116	92	13	95	72
229	7	130	20	8	78	75	3	115	92	24	92	64
230	3	134	18	2	83	84	-1	116	91	16	94	70
231	6	134	20	7	84	82	2	115	88	27	89	64

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
232	9	124	25	5	77	75	2	110	84	22	103	55
233	5	135	18	0	79	73	3	111	88	22	93	65
234	11	131	14	5	83	81	2	111	87	29	87	64
235	8	112	25	2	81	77	4	125	91	24	100	56
236	6	140	20	0	82	78	4	103	94	22	96	62
237	7	145	11	1	85	85	0	114	89	23	86	71
238	0	146	28	5	82	80	2	113	90	13	105	62
239	10	127	20	12	86	80	6	125	87	20	100	60
240	10	134	12	4	81	79	2	113	92	21	92	67
241	13	135	12	3	76	73	3	114	83	34	98	48
242	6	138	11	6	89	86	3	111	89	31	75	73
243	5	128	4	4	80	75	5	125	88	24	94	65
244	14	137	10	4	80	77	3	109	90	25	91	64
245	4	135	15	4	90	87	3	125	97	21	90	69
246	8	128	18	10	84	79	5	117	97	24	90	66
247	14	135	13	3	76	73	3	110	94	18	90	72
248	13	138	9	5	83	81	2	110	90	28	85	67
249	16	129	17	7	78	75	3	106	83	35	92	53
250	10	138	14	8	85	80	5	117	93	34	81	65
251	12	138	12	2	82	77	5	94	87	22	99	59
252	16	125	14	3	79	77	2	121	88	27	89	59
253	10	148	7	0	87	83	4	105	87	20	92	68
254	9	129	32	7	82	77	5	114	90	23	98	60
255	5	120	24	8	87	85	2	122	86	20	98	62
256	7	142	11	2	82	80	2	111	94	19	88	73
257	10	137	12	0	84	79	5	112	87	20	92	78
258	6	123	24	7	83	79	4	118	88	31	90	59
259	14	145	15	4	79	75	4	117	91	30	95	55
260	13	139	18	5	83	78	5	100	88	31	90	59
261	20	112	29	6	82	80	2	128	88	29	97	53
262	13	124	15	4	76	72	4	117	90	28	91	61
263	11	120	28	8	89	79	10	107	92	27	100	53
264	4	122	30	11	82	78	4	114	91	29	95	56
265	6	140	7	3	78	80	3	112	87	28	75	77
266	11	134	16	2	82	79	3	109	90	20	97	63
267	5	128	29	7	79	76	3	115	91	24	93	63
268	9	127	22	10	76	75	1	112	86	27	94	59
269	9	132	12	7	83	80	3	113	93	31	85	64
270	9	137	23	4	83	78	5	102	90	23	99	58
271	9	133	20	7	83	78	5	113	89	34	81	65
272	6	137	12	4	80	82	2	116	81	21	85	74
273	7	131	21	6	81	77	4	112	91	24	93	63
274	4	100	34	13	83	80	3	133	93	21	107	52
275	5	155	7	2	87	85	2	98	90	22	80	78
276	10	131	24	4	80	75	5	106	89	24	100	56
277	4	137	25	5	80	76	4	115	85	28	92	60
278	10	151	5	5	79	73	6	106	94	26	79	75
279	4	109	23	18	90	85	5	134	99	19	97	65
281	-2	122	24	3	83	80	3	126	98	19	93	78
282	7	130	19	3	83	80	3	114	91	19	98	63
283	4	117	27	10	86	83	3	124	92	20	100	60
284	12	102	34	16	80	77	3	125	88	31	102	47
286	16	133	19	7	74	70	4	94	82	39	86	65
287	3	121	21	8	83	80	3	126	92	24	90	66
288	9	121	26	10	79	72	7	113	94	26	101	53

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
289	14	117	23	13	80	70	10	116	93	38	89	53
290	7	132	15	5	80	77	3	116	93	18	94	68
291	8	145	12	4	81	81	0	105	86	22	92	66
292	5	125	20	5	78	77	1	120	83	22	93	65
293	1	111	38	10	83	78	5	121	94	21	107	52
294	7	132	20	3	81	76	5	112	88	29	87	64
295	6	120	28	10	84	80	4	117	90	23	100	67
296	14	142	25	4	84	75	9	92	91	32	96	52
297	10	140	13	4	76	75	1	108	85	27	85	68
298	10	131	15	10	74	75	-1	112	83	33	85	62
300	11	128	21	3	75	73	2	109	83	29	93	58
301	1	130	20	6	85	83	2	113	92	25	86	79
302	5	139	20	4	87	82	5	107	85	19	95	66
303	1	128	27	4	76	75	1	114	89	14	104	62
305	16	150	11	-1	78	73	5	93	85	39	78	63
306	3	132	24	9	80	80	0	111	89	27	89	64
307	9	102	38	14	80	77	3	122	94	25	111	44
308	5	111	36	9	81	77	4	118	94	21	111	48
309	6	124	23	7	82	79	3	117	88	20	99	61
310	7	140	16	0	79	79	0	108	89	23	90	67
311	12	137	25	6	75	71	4	98	83	26	100	54
313	11	134	20	8	77	71	6	116	88	29	93	60
314	19	119	5	7	72	67	5	102	85	35	82	63
315	2	133	21	3	75	75	0	113	88	23	90	67
316	13	156	6	4	84	81	3	97	89	24	84	72
317	19	118	22	11	83	80	3	111	84	37	93	49
318	8	117	27	10	73	74	-1	120	85	25	99	56
319	14	125	21	9	83	75	8	111	93	32	92	56
320	7	134	24	5	81	76	5	115	93	31	90	59
321	5	108	33	11	87	84	3	126	96	18	109	57
322	10	133	16	1	86	83	3	112	89	27	90	62
323	8	153	8	5	83	80	3	101	87	32	75	73
324	13	123	28	5	84	78	6	105	91	25	103	52
325	-1	115	28	10	84	82	2	128	97	23	93	64
326	9	130	20	6	82	81	1	112	88	20	97	63
327	6	122	28	5	83	77	6	114	93	28	96	56
328	5	117	36	8	83	81	2	111	85	20	112	48
329	4	139	21	5	82	78	4	120	96	22	93	65
330	7	134	15	5	81	76	5	114	88	14	99	67
331	5	141	20	3	84	79	5	103	93	20	96	64
332	8	142	13	9	77	83	-3	109	84	28	83	70
333	11	152	8	4	83	80	3	101	91	26	82	72
334	8	134	19	7	80	74	6	120	94	19	96	65
335	12	142	13	7	75	70	5	103	87	30	84	66
336	17	105	33	8	86	80	6	124	97	24	108	49
337	9	125	22	0	73	73	0	115	83	25	97	59
338	10	127	27	4	79	72	7	106	88	33	93	54
339	12	142	13	6	82	77	5	104	92	33	83	63
340	6	125	27	6	89	85	4	112	96	19	105	57
341	4	121	17	9	83	77	6	119	96	18	102	60
342	17	138	25	3	82	79	3	101	92	32	89	57
344	11	136	19	8	84	78	6	103	88	24	97	60
345	10	120	23	9	77	75	2	118	88	27	96	57
346	6	139	21	4	80	77	3	113	92	20	98	62
347	4	125	18	9	80	78	2	123	93	18	94	68

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
348	9	122	25	3	90	82	8	112	95	27	98	55
349	10	148	10	4	88	86	2	102	86	21	90	69
350	2	130	20	5	79	77	2	120	95	20	90	70
351	12	131	21	7	77	74	3	105	88	28	96	56
352	16	126	14	5	82	83	-1	116	82	30	89	61
353	12	146	14	2	79	74	5	98	90	22	93	65
354	8	133	23	11	80	73	7	103	93	31	90	58
355	4	126	24	11	79	74	5	116	92	25	93	62
356	6	120	18	7	82	80	2	130	96	16	94	90
357	15	128	9	5	75	72	3	112	90	27	94	59
358	8	129	19	6	80	78	2	115	87	25	92	63
359	10	153	16	5	80	72	8	92	90	26	89	65
361	9	115	28	8	80	75	5	118	92	28	97	55
362	7	111	28	13	81	76	5	124	91	33	91	56
363	11	110	30	13	82	75	7	120	95	32	96	52
364	15	136	15	7	81	79	2	106	86	33	86	61
365	7	130	15	4	90	87	3	120	94	16	86	72
366	11	134	18	8	84	77	7	107	97	27	93	60
367	7	134	17	4	84	82	2	116	94	24	89	67
368	5	122	28	5	79	74	5	113	91	27	101	55
369	5	155	-4	2	86	84	2	118	100	23	68	93
370	12	137	11	3	75	73	2	111	85	33	81	66
371	16	132	20	9	83	78	5	106	85	38	85	57
372	6	121	27	8	78	76	2	116	86	26	98	56
373	10	137	17	7	86	82	4	105	92	29	87	64
374	10	145	12	8	75	73	2	105	87	23	89	73
375	5	161	13	-2	83	78	5	91	90	22	86	72
376	12	108	27	10	77	71	6	126	92	29	97	54
377	8	139	5	0	80	78	2	119	90	25	83	77
378	6	120	24	11	86	80	6	121	94	16	104	60
379	11	112	14	12	81	74	7	123	93	21	104	55
380	5	137	20	6	83	81	2	114	92	16	97	67
381	13	117	29	11	76	72	4	109	86	30	100	50
382	7	129	18	5	75	78	-3	113	84	25	89	66
383	12	136	14	6	80	77	3	108	88	25	93	62
384	10	130	20	10	83	77	6	113	93	26	92	62
385	13	129	17	7	81	77	4	112	85	40	82	58
386	12	130	20	10	87	79	8	107	93	27	95	58
387	11	131	11	5	77	75	2	116	87	28	84	68
388	6	135	15	10	89	79	10	116	99	19	91	70
389	4	144	14	2	83	80	3	106	96	19	90	71
390	4	149	5	2	86	85	1	112	89	23	75	82
391	1	122	30	11	83	76	7	121	99	16	105	59
393	3	139	15	3	87	83	4	113	84	23	95	62
394	20	122	20	8	76	73	3	124	90	25	90	65
395	6	116	30	9	82	80	2	118	90	27	98	55
396	7	140	17	1	79	75	4	106	89	25	93	62
397	3	108	28	13	83	80	3	131	95	27	94	59
398	8	139	18	7	82	80	2	109	90	24	90	66
399	1	102	18	9	77	74	3	128	90	10	114	56
400	8	113	23	4	84	83	1	127	96	21	100	59
401	10	123	20	3	88	77	3	116	90	23	100	57
402	11	104	32	13	82	79	3	123	92	28	104	48
403	8	131	16	6	83	79	4	115	95	15	98	66
404	10	124	27	8	87	81	6	109	93	32	95	53

Raw Data (continued)

ID Number	OCPLAN	IANGLE	L1OCC	UIAP	SNA	SNB	ANB	U1FH	FHNA	FMA	IMPA	FMIA
405	7	119	25	13	86	81	5	120	94	18	105	57
406	13	132	12	6	88	82	6	113	89	26	91	64
407	11	148	8	5	86	82	4	104	93	31	78	71
408	6	133	21	4	81	75	6	109	93	19	98	63
409	10	110	34	9	84	79	5	120	87	33	100	47
410	3	151	9	4	83	80	3	106	93	19	82	79
411	4	129	18	6	83	78	5	117	96	20	93	67
412	21	117	39	12	77	72	5	124	89	31	116	33
413	10	126	24	5	75	74	1	111	88	23	88	69
414	8	139	20	5	76	74	2	100	86	24	95	61
415	11	135	14	2	75	75	0	110	85	28	86	66
416	8	123	26	7	87	85	2	111	88	24	84	73
417	5	121	29	9	83	78	5	115	93	29	96	55
418	6	137	12	3	77	81	-4	115	86	20	90	70
419	1	139	25	4	85	80	5	103	94	17	99	64

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
1	8	6	2	4	1	3	23
2	13	7	2	11	0	3	29
3	5	3	2	1	0	2	15
4	10	9	2	1	1	3	23
6	5	4	2	8	0	3	15
7	7	4	2	10	0	3	40
8	2	2	2	8	1	3	42
9	2	4	2	8	0	3	23
10	4	6	2	4	1	3	24
11	-2	2	2	6	1	3	32
12	8	8	2	2	1	3	31
13	-2	4	2	2	1	3	19
14	6	7	2	12	0	1	30
17	1	5	2	6	1	3	29
18	11	9	2	2	1	3	23
19	3	8	2	4	1	3	28
20	8	6	2	10	0	3	34
21	4	6	2	6	1	3	29
22	4	8	2	12	0	1	23
23	7	2	2	11	0	3	21
24	3	0	2	4	1	3	21
25	6	3	2	12	0	1	17
27	5	4	2	12	0	1	25
28	8	4	2	11	0	3	13
29	4	3	2	2	1	3	23
30	7	5	2	8	0	3	20
31	7	3	2	11	0	3	40
32	2	6	2	6	1	3	17
33	6	7	2	2	1	3	20
34	10	6	2	4	1	3	18
36	4	2	2	10	0	3	19
37	6	5	2	4	1	3	22
38	8	6	2	10	0	3	12
39	3	5	2	12	0	3	19
41	1	2	2	2	1	3	20
42	3	2	2	10	0	3	32
43	4	4	2	12	0	3	28
44	9	4	2	13	1	3	39
45	4	3	2	8	0	3	25
46	5	10	2	11	0	3	25
47	3	3	2	1	0	2	16
48	5	4	2	6	1	3	20
49	5	5	2	11	0	3	35
50	6	15	2	1	0	2	24
51	6	6	2	2	1	3	46
52	3	2	2	2	1	3	28
54	10	7	2	6	1	3	33
56	9	14	2	2	1	3	25
58	7	9	2	6	1	3	21
59	6	5	3	8	0	3	20
60	3	5	3	4	1	3	26
61	8	3	3	13	1	3	41
62	6	2	3	4	1	3	28
63	2	7	3	10	0	3	27
64	2	0	3	8	0	3	39

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
65	13	10	3	12	0	1	34
66	5	4	3	6	1	3	12
67	1	3	3	10	0	3	26
68	3	5	3	6	1	3	26
69	2	4	3	6	1	3	25
70	7	9	3	2	1	3	7
71	7	9	3	11	0	3	26
72	-2	3	3	4	1	3	27
73	5	4	3	6	1	3	24
74	3	3	3	12	0	1	32
75	3	5	3	10	0	3	23
76	4	2	3	13	1	3	22
77	4	4	3	8	0	3	25
78	3	4	3	12	0	1	20
79	5	5	3	8	0	3	43
80	5	3	3	6	1	3	21
81	5	4	3	8	0	3	19
82	3	4	3	10	0	3	27
83	3	3	3	1	0	2	24
84	4	4	3	2	1	3	21
85	5	4	3	2	1	3	14
86	6	4	3	8	0	3	40
87	8	5	3	6	1	3	21
88	8	6	3	1	0	2	24
89	7	2	3	13	1	3	48
90	5	4	3	11	0	3	18
91	5	6	3	11	0	3	45
92	5	6	3	9	0	3	23
93	7	3	3	1	0	2	20
94	5	5	1	4	1	3	24
95	4	5	1	4	1	3	16
96	7	3	1	2	1	3	25
97	5	8	1	12	0	3	25
98	7	3	1	8	0	3	15
99	5	4	1	8	0	3	16
100	5	5	1	11	0	3	18
101	5	5	1	4	1	3	23
102	7	3	1	2	1	3	23
103	2	3	1	2	1	3	18
104	5	5	1	4	1	3	24
105	15	10	1	11	0	3	26
106	8	6	1	12	0	1	20
107	3	4	1	13	1	3	21
108	5	4	1	6	1	3	26
109	6	6	1	8	0	3	25
110	4	3	1	2	1	3	29
111	3	1	1	2	1	3	38
112	4	2	1	2	1	3	11
113	12	7	1	8	0	3	59
114	5	3	1	2	1	3	17
115	8	7	1	2	1	3	23
116	4	5	1	15	0	4	26
117	6	6	1	11	0	3	16
118	6	3	10	4	1	3	15
119	3	3	10	6	1	3	18

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
120	4	3	10	4	1	3	12
121	5	4	10	8	0	3	17
122	-1	5	10	11	0	3	15
123	6	11	10	10	0	3	17
124	6	11	10	6	1	3	12
125	0	1	10	2	1	3	15
126	2	4	10	15	0	4	30
127	4	4	10	8	0	3	35
128	3	4	10	4	1	3	21
129	6	8	10	8	0	3	23
130	2	4	10	2	1	3	25
131	7	4	10	12	0	1	36
132	6	6	10	6	1	3	21
133	4	0	10	11	0	3	24
134	7	8	10	11	0	3	26
135	1	7	10	8	0	3	45
136	11	13	10	6	1	3	25
137	4	6	10	6	1	3	39
138	6	4	10	12	0	1	17
139	0	0	10	13	1	3	25
140	5	6	10	4	1	3	19
141	4	9	10	2	1	3	25
142	6	11	10	13	1	3	24
143	7	7	10	10	0	3	18
144	0	1	10	15	0	4	43
145	6	6	10	8	0	3	45
146	0	4	10	15	0	4	31
147	5	5	10	2	1	3	23
148	5	4	11	6	1	3	23
149	4	5	11	4	1	3	19
150	7	5	11	6	1	3	14
151	1	8	11	11	0	3	31
152	16	7	11	6	1	3	45
153	1	1	11	6	1	3	27
154	2	4	11	15	0	4	43
155	8	6	11	8	0	3	19
156	8	7	11	8	0	3	13
157	4	4	11	8	0	3	17
158	6	13	11	8	0	3	12
159	8	13	11	2	1	3	18
160	4	4	11	4	1	3	14
161	6	6	11	15	0	4	36
162	9	8	11	6	0	3	29
165	10	12	11	12	0	3	41
166	14	15	11	12	0	3	35
167	5	5	11	8	0	3	28
168	5	9	11	6	1	3	21
169	6	7	11	11	0	3	22
170	9	4	11	4	1	3	14
171	4	7	11	11	0	3	21
172	17	11	11	3	0	3	16
173	10	4	11	1	0	2	15
174	5	10	11	7	0	3	18
175	8	6	11	15	0	4	34
176	9	6	11	2	1	3	21

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
177	6	9	11	11	0	3	14
178	3	2	11	6	1	3	27
179	16	12	11	8	0	3	28
180	4	1	11	10	0	3	16
181	5	4	11	8	0	3	12
182	3	3	11	2	1	3	19
183	8	10	12	8	0	3	33
184	1	3	12	9	0	3	26
185	8	6	12	2	1	3	11
186	8	8	12	11	0	3	29
187	8	6	12	6	1	3	23
188	6	5	12	13	1	3	38
189	4	3	12	15	0	4	30
190	14	9	12	11	0	3	42
191	7	0	12	2	1	3	26
192	6	9	12	2	1	3	13
193	13	12	12	1	0	2	21
194	4	8	12	10	0	3	12
195	8	6	12	11	0	3	20
196	7	8	12	2	1	3	23
197	8	6	12	4	0	4	17
198	4	2	12	15	0	4	13
199	4	5	12	2	1	3	15
200	10	5	12	6	1	3	39
201	7	3	12	1	0	2	34
202	5	4	12	6	1	3	29
203	7	6	12	8	0	3	34
204	9	9	12	11	0	3	42
205	7	6	12	11	0	3	28
206	10	5	13	8	0	3	23
207	3	3	13	1	0	2	30
208	2	0	13	6	1	3	36
209	12	12	13	8	0	3	24
210	4	4	13	12	0	1	19
211	3	4	13	15	0	4	37
212	2	4	13	6	1	3	29
213	5	8	13	4	1	3	24
214	6	11	13	11	0	3	12
215	4	6	13	11	0	3	13
216	5	8	13	2	1	3	23
217	9	4	13	8	0	3	66
218	3	0	13	4	1	3	14
219	2	5	13	4	1	3	14
220	6	6	13	6	1	3	18
221	1	10	13	8	0	3	18
222	10	9	13	2	1	3	23
223	5	5	13	8	0	3	16
224	6	5	13	11	0	3	20
225	2	6	13	6	1	3	22
226	5	6	13	6	1	3	23
227	12	12	13	8	0	3	44
228	5	2	13	11	0	3	18
229	4	5	13	4	1	3	15
230	6	2	13	10	0	3	13
231	6	5	13	8	0	3	23

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
232	5	5	13	2	1	3	15
233	5	3	13	6	1	3	26
234	5	4	13	4	1	3	19
235	7	5	13	2	1	3	22
236	3	3	13	6	1	3	22
237	4	1	4	10	0	3	19
238	2	2	4	10	0	3	30
239	5	7	4	2	1	3	24
240	4	3	4	13	1	3	20
241	1	2	4	6	1	3	18
242	2	4	4	8	0	3	39
243	7	4	4	2	1	3	17
244	6	3	4	11	0	3	21
245	2	2	4	2	1	3	21
246	4	4	4	6	1	3	24
247	4	2	4	6	1	3	48
248	5	4	4	11	0	3	14
249	6	6	4	12	0	1	23
250	2	4	4	11	0	3	29
251	5	5	4	15	0	4	37
252	6	5	4	12	0	1	35
253	4	2	4	6	1	3	25
254	7	5	4	2	1	3	36
255	7	3	4	2	1	3	22
256	3	3	4	8	0	3	20
257	6	4	4	2	1	3	37
258	4	5	4	4	1	3	20
259	4	8	4	8	0	3	26
260	3	5	4	10	0	3	26
261	11	7	4	12	0	1	40
262	6	7	5	4	1	3	32
263	0	6	5	4	1	3	30
264	7	10	5	7	0	3	24
265	9	2	5	6	1	3	31
266	6	4	5	1	0	2	34
267	6	5	5	8	0	3	23
268	10	6	5	10	0	3	33
269	5	5	5	2	1	3	17
270	1	4	5	6	1	3	22
271	5	10	5	12	0	1	42
272	7	2	5	8	0	3	24
273	6	5	5	10	0	3	20
274	11	10	5	2	1	3	34
275	2	1	5	10	0	3	33
276	3	6	5	2	1	3	38
277	4	5	5	4	1	3	27
278	1	0	5	4	1	3	39
279	13	10	5	1	0	2	26
281	8	6	5	1	0	2	33
282	3	4	5	11	0	3	31
283	9	7	5	8	0	3	26
284	14	11	5	10	0	3	39
286	5	5	5	4	1	3	26
287	8	8	5	2	1	3	23
288	6	8	5	8	0	3	21

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
289	6	12	5	11	0	3	18
290	4	4	5	11	0	3	20
291	6	4	5	11	0	3	22
292	6	3	5	12	0	1	23
293	7	8	5	11	0	3	38
294	4	6	5	6	1	3	22
295	7	7	5	10	0	3	32
296	-3	7	5	7	0	3	19
297	4	3	5	6	1	3	19
298	11	6	5	4	1	3	24
300	3	5	5	11	0	3	19
301	4	2	5	2	1	3	40
302	2	4	5	8	0	3	29
303	5	4	5	4	1	3	23
305	0	3	5	2	1	3	34
306	9	5	5	4	1	3	26
307	11	13	5	4	1	3	21
308	6	9	5	6	1	3	23
309	6	5	5	1	0	2	22
310	5	2	6	7	0	3	24
311	4	4	6	6	1	3	27
313	3	6	6	10	0	3	16
314	4	5	6	4	1	3	39
315	6	3	6	2	1	3	37
316	2	2	6	10	0	3	24
317	9	8	6	8	0	3	14
318	11	6	6	6	1	3	21
319	4	7	6	4	1	3	31
320	3	5	6	10	0	3	31
321	10	10	6	6	0	3	13
322	11	5	6	4	1	3	26
323	4	0	6	4	1	3	25
324	3	6	6	6	1	3	28
325	9	8	6	1	0	2	27
326	7	5	6	8	0	3	21
327	2	8	6	11	0	3	25
328	2	8	6	10	0	3	24
329	4	5	6	4	1	3	26
330	4	2	6	12	0	1	35
331	2	4	6	4	1	3	20
332	12	5	6	7	0	3	24
333	2	4	6	4	1	3	24
334	3	5	6	1	0	2	36
335	4	6	6	7	0	3	23
336	8	12	6	11	0	3	21
337	7	3	6	6	1	3	22
338	-2	8	6	11	0	3	25
339	2	6	6	1	0	2	25
340	3	6	6	1	0	2	23
341	7	6	6	1	0	2	32
342	3	5	6	2	1	3	11
344	4	6	6	13	1	3	21
345	7	7	6	7	0	3	17
346	3	7	6	6	1	3	31
347	8	5	6	2	1	3	36

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
348	6	6	6	1	0	2	18
349	5	3	6	13	1	3	23
350	4	5	6	8	0	3	26
351	4	6	6	2	1	3	24
352	8	4	6	11	0	3	22
353	0	3	6	10	0	3	31
354	6	9	6	1	0	2	24
355	6	7	6	11	0	3	29
356	7	4	6	11	0	3	29
357	4	4	6	4	1	3	35
358	6	4	6	6	1	3	19
359	-2	3	6	6	1	3	31
361	5	7	7	6	1	3	16
362	10	11	7	4	1	3	36
363	7	12	7	2	1	3	25
364	5	5	7	13	1	3	23
365	2	2	7	10	0	3	24
366	3	8	7	1	0	2	30
367	4	4	7	8	0	3	19
368	1	7	7	4	1	3	24
369	3	1	7	3	0	3	23
370	2	3	7	10	0	3	32
371	5	7	7	11	0	3	18
372	9	7	7	12	0	3	26
373	5	8	7	7	0	3	23
374	6	2	7	7	0	3	24
375	-3	1	7	11	0	3	27
376	5	6	7	11	0	3	21
377	4	2	7	1	0	2	27
378	7	7	7	10	0	3	16
379	10	9	7	4	1	3	34
380	5	4	7	8	0	3	11
381	9	6	7	2	1	3	23
382	10	4	7	6	1	3	18
383	4	3	7	11	0	3	16
384	7	8	7	1	0	2	18
385	5	5	7	6	1	3	36
386	4	10	7	13	1	3	21
387	5	5	7	7	0	3	19
388	3	4	7	10	0	3	41
389	1	2	7	11	0	3	25
390	5	3	7	1	0	2	24
391	5	9	7	12	0	1	29
393	2	4	7	6	1	3	23
394	7	5	7	6	1	3	31
395	8	7	7	13	1	3	14
396	4	5	7	7	0	3	23
397	11	10	7	10	0	3	37
398	4	4	7	6	1	3	25
399	11	5	7	8	0	3	25
400	6	6	7	13	1	3	33
401	5	6	7	4	1	3	32
402	10	11	7	1	0	2	15
403	3	2	7	10	0	3	23
404	3	10	7	6	1	3	30

Raw Data (continued)

ID Number	U1NA	L1NB	RES	FAC	SLOT	ANGLE	TXD
405	9	11	7	4	1	3	17
406	4	4	7	8	0	3	34
407	2	4	7	2	1	3	32
408	1	5	7	2	1	3	32
409	6	7	7	1	0	3	23
410	2	1	7	6	1	3	22
411	1	4	7	6	1	3	23
412	12	16	8	12	0	1	33
413	6	2	8	4	1	3	26
414	5	4	8	10	0	3	30
415	4	2	8	8	0	3	35
416	9	4	8	8	0	3	23
417	6	9	8	2	1	3	24
418	6	4	8	10	0	3	31
419	0	3	8	10	0	3	37

Case Western Reserve University
Institutional Review Board
NOTICE OF ADDENDUM APPROVAL

Responsible Investigator: **Dr. Monica Fisher**
Department: **Dental Clinic Ortho**
IRB Protocol Number: **20050212**
Addendum Number: **2, to include study objective: to determine pre-tx variables associated w/tx duration and develop index to estimate tx length - using existing data**
Title: ***Predicting Orthodontic Treatment Duration Using Pre-treatment Patient Variable***
Co-Investigator: **Dr. Reid M. Wenger**

Addendum Approval Date: **December 16, 2005**

The Institutional Review Board (IRB) has APPROVED the submitted addendum for the above protocol.
As an investigator of human subjects, your responsibilities include the following (see full description of responsibilities at our website):

1. Report all adverse events involving human subjects to the Instituional Review Board (IRB) within three (3) business days of the occurrence.
2. Submit any further changes to an approved protocol or consent form to the IRB, and receive approval from the IRB, before implementation of the change.
3. Keep all research data and original consent documents in your possession for at least three (3) years after the study is terminated.

Questions? Please visit our website: http://ora.ra.cwru.edu/orc_humansubjects_CWRU_IRB.asp

OR
contact our administrative office...

Isabel Sanchez, IRB Administrator
216.368.6993
Maureen Dore-Arshenovitz, IRB Assistant
216.368.6925
Fax: 216.368.3737

CASE Institutional Review Board
Office of Research Compliance
Sears Building 657
Cleveland, OH 44106-7230

CITI Course in The Protection of Human Research Subjects

Monday, January 16, 2006

CITI Course Completion Record
for reid wenger

To whom it may concern:

On *1/16/2006*, *reid wenger* (username=reidwenger) completed all *CITI Program* requirements for the *Basic CITI* Course in The Protection of Human Research Subjects.

Learner Institution: *Case Western Reserve University CREC Program*

Learner Group: *Group 1.*

Learner Group Description: *Biomedical Research Faculty, Staff, and Students*

Contact Information:

Gender: Male

Case Network ID/EMPLID/UHC, MHS, LSVAMC e-mail: rmw14@case.edu

Department: orthodontics

Afilliated Institution: Case Western Reserve University

Which course do you plan to take?: Social & Behavioral Investigator Course Only

Role in human subjects research: Clinical Reseacher

Mailing Address:

Email: rmw14@case.edu

Office Phone: 216-368-3249

The Required Modules for *Group 1.* are:	Date completed
Introduction	01/16/06
History and Ethical Principles	01/16/06
Basic Institutional Review Board (IRB) Regulations and Review Process	01/16/06
Informed Consent	01/16/06
Social and Behavioral Research for Biomedical Researchers	01/16/06
Records-Based Research	01/16/06
Genetic Research in Human Populations	01/16/06
Research With Protected Populations - Vulnerable Subjects: An Overview	01/16/06
Vulnerable Subjects- Research With Prisoners	01/16/06
Vulnerable Subjects- Research Involving Minors	01/16/06
Vulnerable Subjects- Research Involving Pregnant Women and Fetuses in Utero	01/16/06
Group Harms:Research With Culturally or Medically Vulnerable Groups	01/16/06
FDA-Regulated Research	01/16/06
HIPAA and Human Subjects Research	01/16/06
Workers as Research Subjects-A Vulnerable Population	01/16/06
Hot Topics	01/16/06
Conflicts of Interest in Research Involving Human Subjects	01/16/06
Case Western Reserve University CREC Program	01/16/06

Additional optional modules completed:	Date completed

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

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