

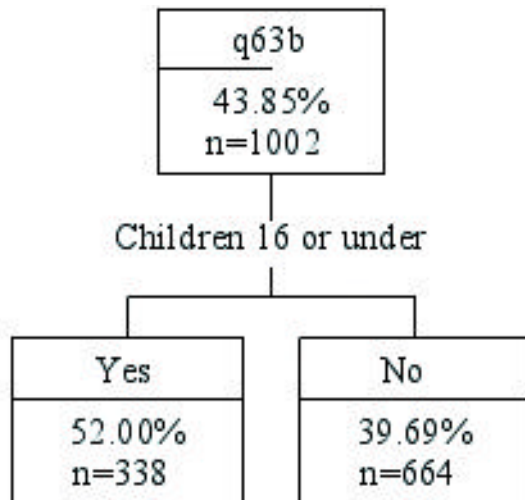
## APPENDIX 3 - CHAID ANALYSIS

### Explanation of CHAID

#### What is CHAID?

CHAID is a multi-variate technique which segments a sample according to the relationship between the dependent variable in the analysis (for example, whether or not the respondent has seen carbon monoxide publicity) and a set of 'predictors'/independent variables (in this case the set of all demographic variables from the survey).

The output comes in the form of a tree diagram, such as the one below:



#### How do you read a CHAID tree?

The top box describes the results for the whole sample on the dependent variable – in this case 43% (43.85%) agree that they need more information about the risks of accidents in the home. There were (n=)1002 respondents in the sample.

The sample is then segmented into smaller groups. In the above tree, the variable which indicates whether or not there are children under 16 in the household is used to split the sample into (n=)338 with children and (n=)664 without; 52% and 40% of these groups respectively would like more information. Each of these groups is segmented further until the bases reach a certain size (the limit is usually set at 50).

Because of the way in which CHAID segments the sample, groups who (in this case) are very likely (or very unlikely) to require more information can be readily identified.

#### How does CHAID work?

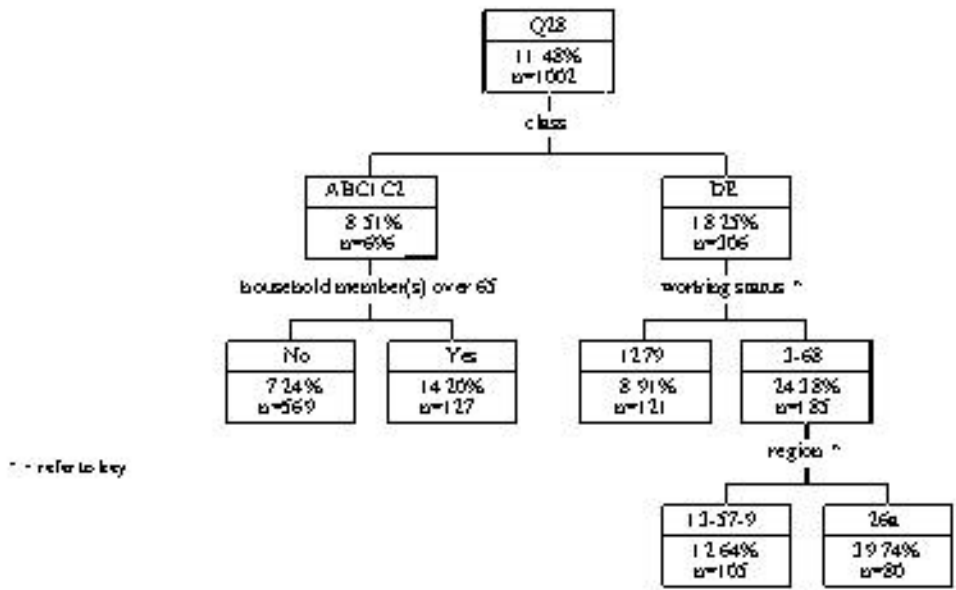
At each stage CHAID finds all the variables which are 'predictors' for the dependent variable. In other words it finds all the predictors (in this case demographics) which split the sample into groups with contrasting views/experiences (in this case, propensity to have seen/heard carbon monoxide publicity). CHAID will segment the sample using the best predictor at each stage. Alternatively, more useful/interesting predictors can be chosen.

When the sample is split (e.g. by class, as above) the groups which are not (statistically) significantly different from one another are grouped together. Hence sometimes C2s are grouped with ABC1s and sometimes with DEs.

The CHAID analysis trees for results referred to throughout this report are detailed below.

### CHAID Tree 1

#### Proportion giving *no* spontaneous answers at Q28



#### Key:

#### Working Status:

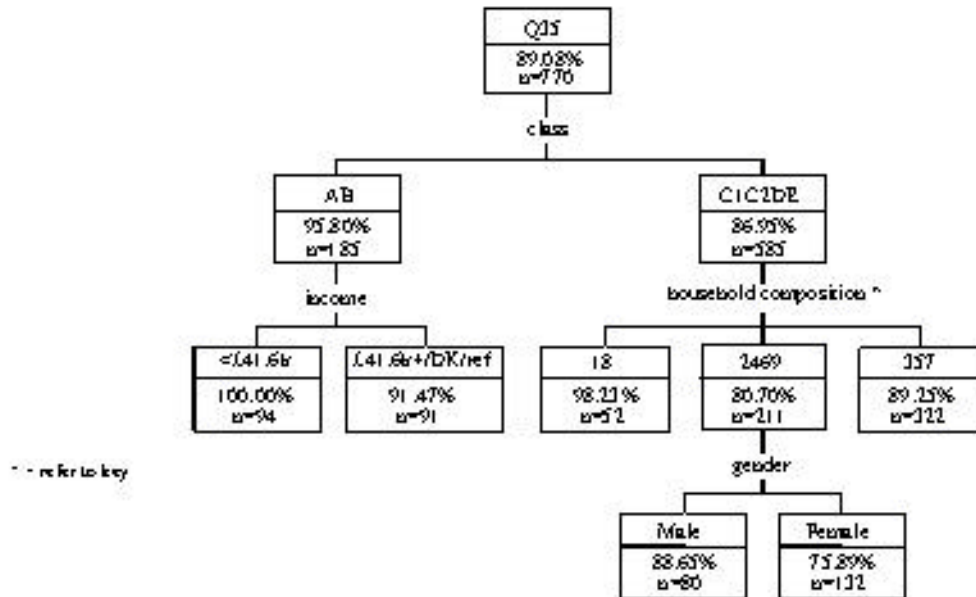
- |                                 |                                  |
|---------------------------------|----------------------------------|
| 1 = Working full time           | 6 = Looking after house/children |
| 2 = Working part-time           | 7 = Invalid/disabled             |
| 3 = Unemployed seeking work     | 8 = Student                      |
| 4 = Unemployed not seeking work | 9 = Other                        |
| 5 = Retired                     |                                  |

#### Region:

- |                           |                |
|---------------------------|----------------|
| 1 = North East            | 6 = London     |
| 2 = North West            | 7 = South East |
| 3 = Yorks & Humber        | 8 = South West |
| 4 = East Mids/East Anglia | 9 = Wales      |
| 5 = West Mids             | a = Scotland   |

## CHAID Tree 2

Proportion knowing correct colour of flame at Q35



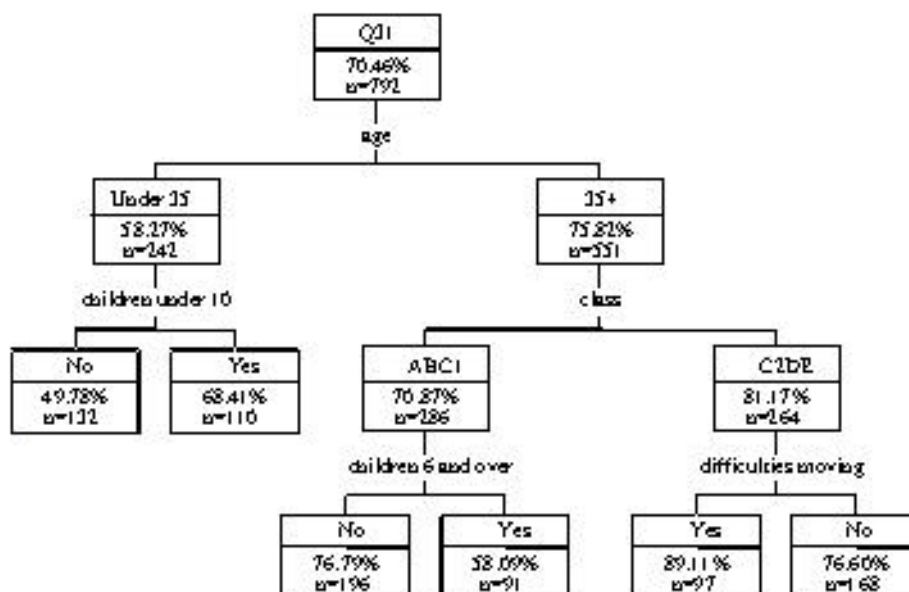
Key:

Household composition:

- |                                 |                       |
|---------------------------------|-----------------------|
| 1 = Single adult <60            | 6 = One parent family |
| 2 = Single adult >60            | 7 = Two parent family |
| 3 = Two adults both under 60    | 8 = Other             |
| 4 = Two adults at least one 60+ | 9 = Not stated        |
| 5 = Three adults or more        |                       |

## CHAID Tree 3

Proportion having boiler serviced recently at Q31



## APPENDIX 4 - STATISTICAL RELIABILITY

The respondents to the questionnaire are only samples of the total "population", so we cannot be certain that the figures obtained are exactly those we would have if everybody had been interviewed (the "true" values). We can, however, predict the variation between the sample results and the "true" values from a knowledge of the size of the samples on which the results are based and the number of times that a particular answer is given. The confidence with which we can make this prediction is usually chosen to be 95% - that is, the chances are 95 in 100 that the "true" value will fall within a specified range. The table below illustrates the predicted ranges for different sample sizes and percentage results at the "95% confidence interval".

Size of sample on which survey result is based	Approximate sampling tolerances applicable to percentages at or near these levels		
	10% or 90%	30% or 70%	50%
	+	+	+
100 interviews	6	9	10
500 interviews	3	4	4
1,000 interviews	2	3	3
2,500 interviews	1	2	2
3,000 interviews	1	2	2

For example, with a sample of 2,500 where 30% give a particular answer, the chances are 19 in 20 that the "true" value (which would have been obtained if the whole population had been interviewed) will fall within the range of plus or minus 2 percentage points from the sample result.

When results are compared between separate groups within a sample, different results may be obtained. The difference may be "real", or it may occur by chance (because not everyone in the population has been interviewed). To test if the difference is a real one - i.e. if it is "statistically significant", we again have to know the size of the samples, the percentage giving a certain answer and the degree of confidence chosen. If we assume "95% confidence interval", the differences between the two sample results must be greater than the values given in the table below:

### Differences required for significance at or near these percentage levels

Size of the samples compared	10% or 90%	30% or 70%	50%
	+	+	+
London and North West (109 and 118)	7.8	12.0	13.1
18-34 years and 70+ years (300 and 123)	6.3	9.6	10.5
Owner occupier and council renter (718 and 212)	4.6	7.0	7.7
Low income and high income (246 and 299)	5.1	7.7	8.5
No qualifications and 'A' levels + (321 and 377)	4.5	6.8	7.5
Male and female (453 and 549)	3.7	5.7	6.2