National Centre for Classification in Health

PROFESSIONAL RELATIVITIES STUDY

RESOURCE MATERIAL P

Consensus Group summary status reports

23 statistical summaries for the 23 confirmed Consensus Groups data sets presenting: summaries of times, intensities, rankings and relative value implications.

Part 2:

Vascular Surgery
Opthalmology
Otolaryngology
Anaesthesiology
Dermatology
Paediatric Medicine / Thoracic Medicine
Extended General Medicine
Cardiology, Renal Medicine & ICU
Radiation Oncology
Gasteroenterology
Neurology
Clinical Haematology & Medical Oncology
Psychiatry

prepared for

Medicare Schedule Review Board
December 2000

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Vascular Surgery

Summary Status Report

November 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Vascular Surgery Consensus Group.

The Vascular Surgery Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 188 items. These comprised 181 procedure items and 7 consultation items.

Analysis of this information showed:

- The median ratio of Vascular Surgery's intra time estimates to NCCH's Theatre Times Database observed procedure times was 102.9%.

- The procedure items were given very much higher ranks than the consultation items ($p < 0.001$).

- The ranks given to link items were very much lower than those given to non-link items ($p < 0.001$).

- There was no bias in the ranking of potential core items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 6.4.

- Given this comparatively large range in relative rates of pay and the comparatively low ranking of the link items, it could be difficult to align Vascular Surgery's rankings and ratings with those of the other groups.

- Consultation items were given significantly lower imputed relative values[1] than procedure items.

- The link items were given very much lower imputed relative values than the non link items.

- There was no significant difference between the imputed relative values given to the good map items and those given to the poor/no map items.

- The correlation between the imputed relative values for Vascular Surgery and schedule fee was reasonable (R^2 = 81%).

- The correlation between the imputed relative values for Vascular Surgery and CPT RV was poor (R^2 = 33%).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Vascular Surgery are set out in Table 2.1 together with associated standard deviations and ranges.

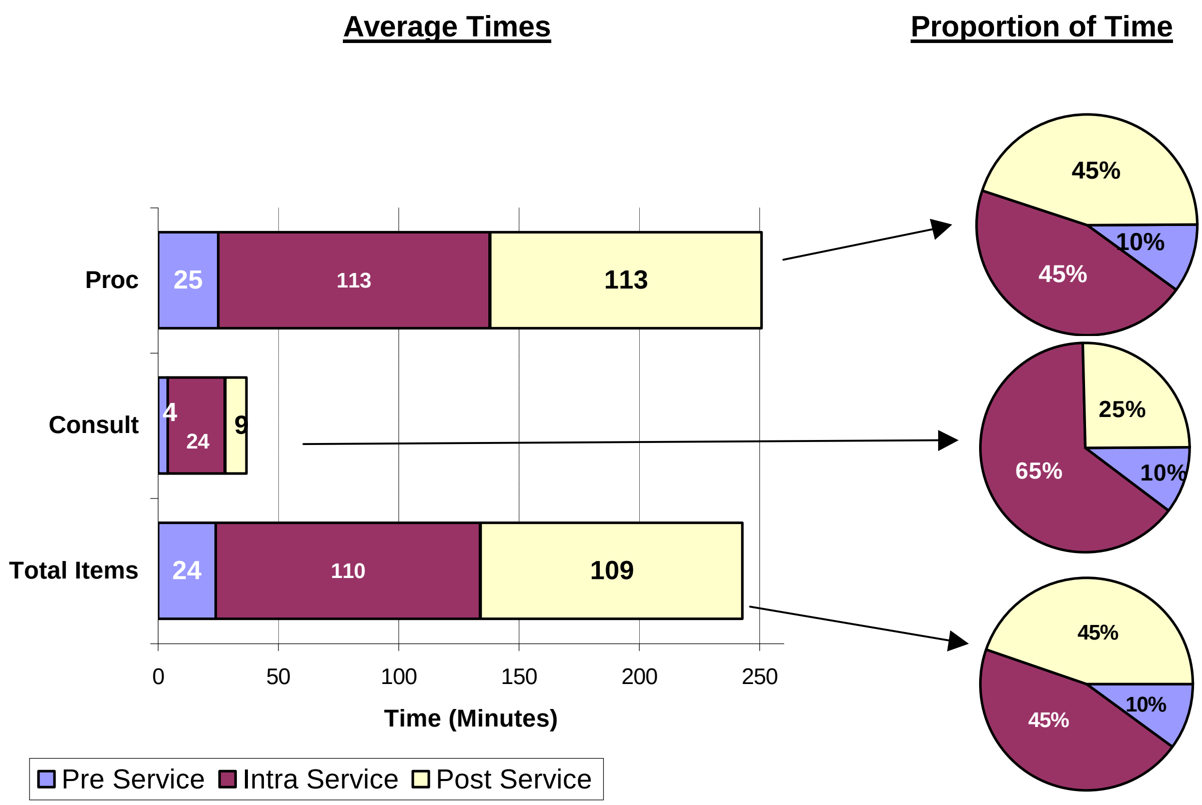
The mean intra service time was 110 minutes and the mean total time was 243 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	24	110	109	243
SD	11	70	83	156
Min	0	10	0	15
Max	60	450	300	780

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	25.0	113.2	112.9	251.1
Consultation Items	3.7	23.6	9.3	36.6
Total Items	24.2	109.8	109.0	243.0

Vascular Surgery's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Vascular Surgery's intra time estimates to the observed procedure times was 102.9%. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Vascular Surgery are set out in Table 3.1 together with associated standard deviations and ranges.

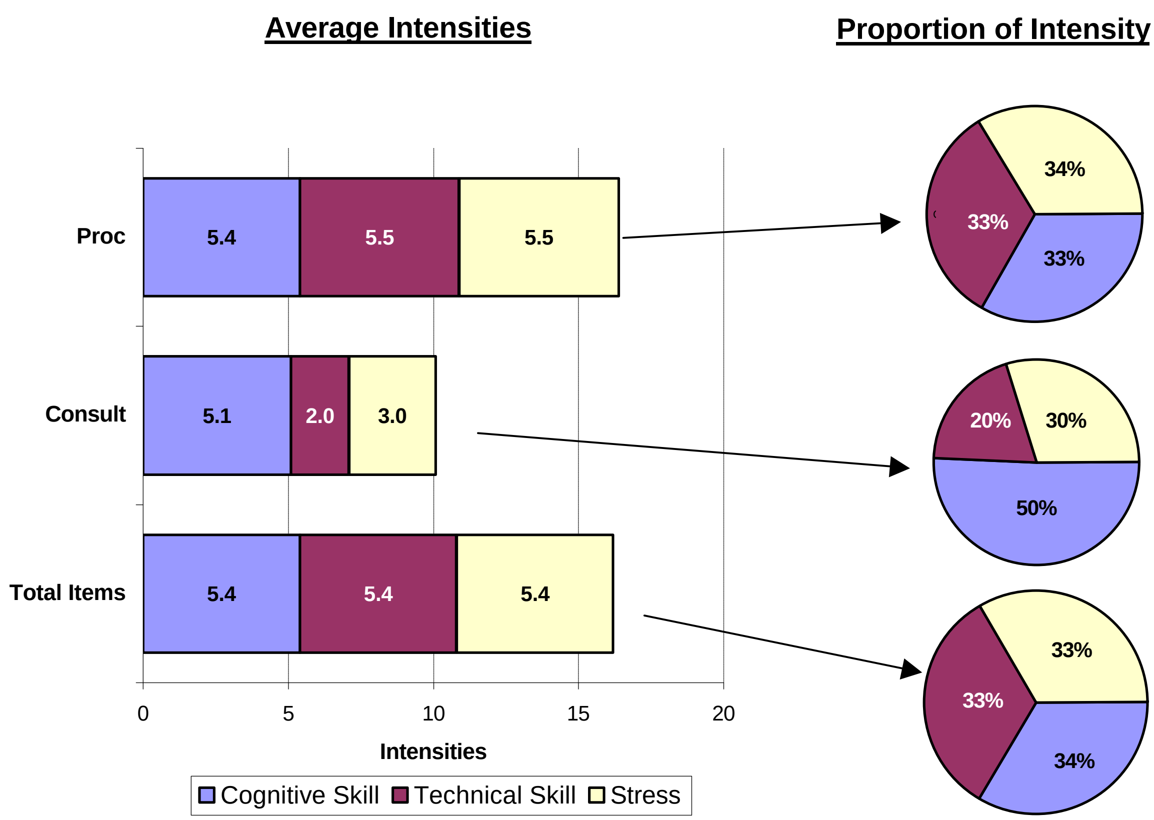
The mean ratings were 5.4 for cognitive skill, technical skill and stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	5.4	5.4	5.4	16.2
SD	2.1	2.5	2.6	6.9
Min	1.0	1.0	1.0	3.0
Max	10.0	10.0	10.0	29.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	5.4	5.5	5.5	16.4
Consultation Items	5.1	2.0	3.0	10.1
Total Items	5.4	5.4	5.4	16.2

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (that is time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given very much higher ranks than the consultation items (sum of ranks test, $p < 0.001$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	181	1	188	91.5
Consultation	7	150	185	171.9
Total	188	1	188	94.5

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as**link items**. The Vascular Surgery Consensus Group assessed 20 link items. These comprised all 7 of their consultation items and 13 of the 181 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were very much lower than those given to non-link items (sum of ranks test, $p < 0.001$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	7	150	185	171.9
Procedure-Link	13	17	176	129.7
Total Link	20	17	185	144.5
Non-Link (Procedure)	168	1	188	88.6
Total	188	1	188	94.5

Good maps of Vascular Surgery's items to CPT were available for 15 of their 188 items. A breakdown of the ranks given to these good map items and to the poor/no map items is set out in Table 4.3. The ranks given to the good map items were not significantly different from those given to the poor/no map items. This implies that good map items (i.e. potential core items) are well spread throughout the ranks.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	15	26	176	96.1
Poor/No Map	173	1	188	94.4
Total	188	1	188	94.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analyzed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Vascular Surgery is 1 to 159.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 5.8. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 6.4.

These ranges in relative rates of pay are higher than the median observed for specialties examined so far[3]. In terms of deviations in rates of pay, it could be difficult to align vascular Surgery's rankings and ratings with those of the other groups

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non link items and between good map items and poor/no map items in terms of imputed relative value (IRV) are set out in Table 5.1.

The consultation items were given imputed relative values that were significantly lower than those given to the procedure items (t tests, $p < 0.01$). The link items were given very much lower imputed relative values than the non-link items (t tests, $p < 0.001$). The range for link items lacks high values which could cause problems with alignment. There was no significant difference between the imputed relative values given to good map items and those given to poor/no map items.

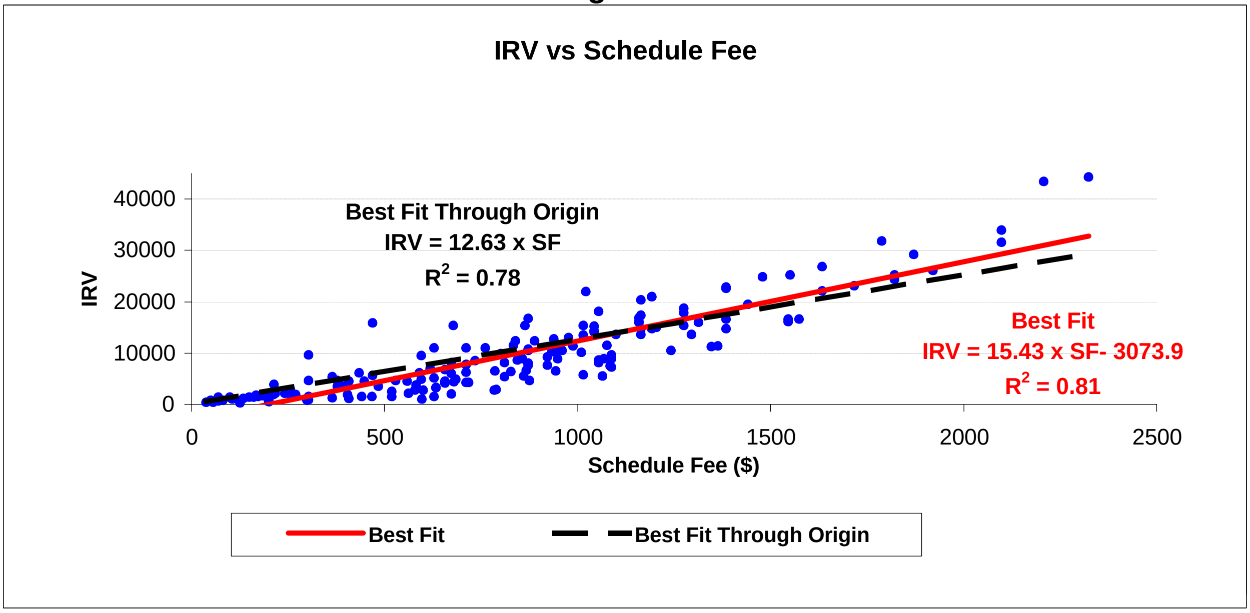
Table 5.1

Type of Item	Number Reviewed	IRVs Mean ± SD		Low	High
Consultation	7	925	± 446	456	1668.3
Procedure	181	9432	± 8293	277.5	44232
Link	20	3457	± 5453	456	21912
Non-link	168	9789	± 8330	277.5	44232
Good Map	15	7741	± 5405	798	16836
Poor/No Map	173	9234	± 8500	277.5	44232
Total	188	9115	± 8295	277.5	44232

A plot of Vascular Surgery's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is reasonable ($R^2 = 0.81$)[4]. There are a number of outliers which should be investigated. These comprise MBS item numbers 33148, 33151 and 33845.

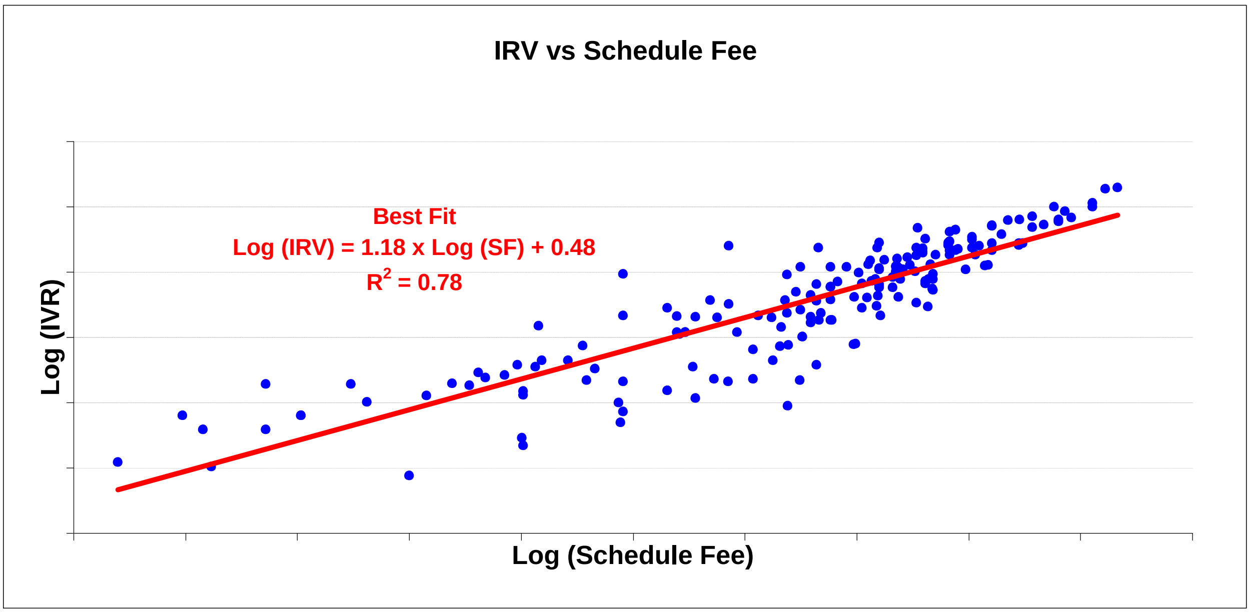
[4] An R^2 value of 0.81 means that the line explains 81% of the variation.

Figure 5.1



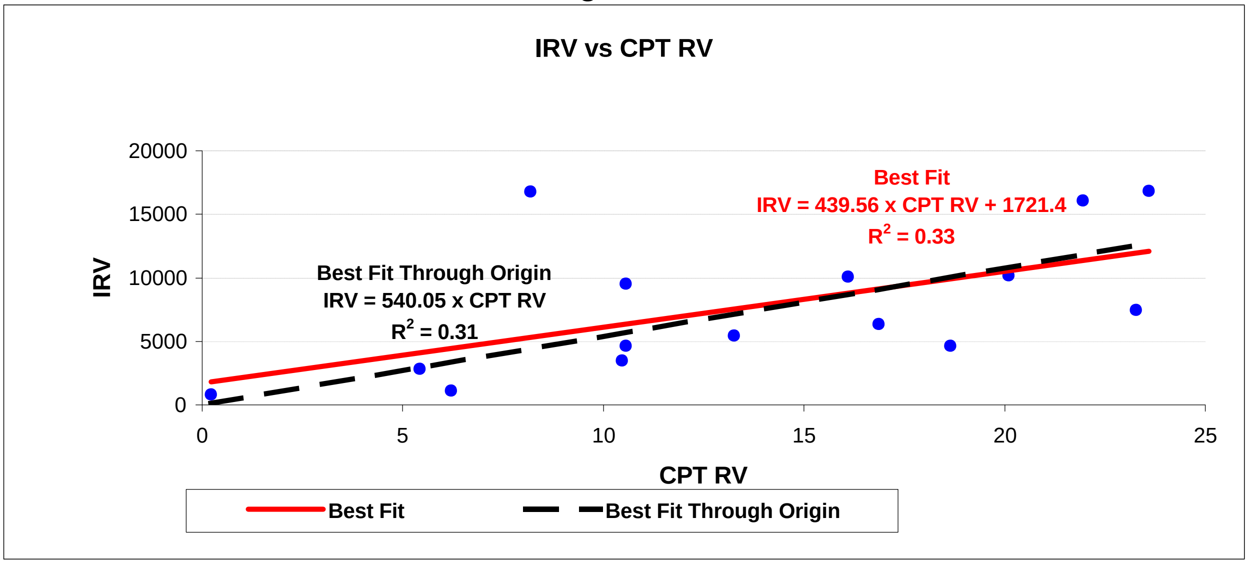
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit explains 78% of the variation as against 81% previously. There are again a number of outliers which should be investigated. These are MBS item numbers 32757, 35200 and 35321 in addition to 33845 which was mentioned previously.

Figure 5.2



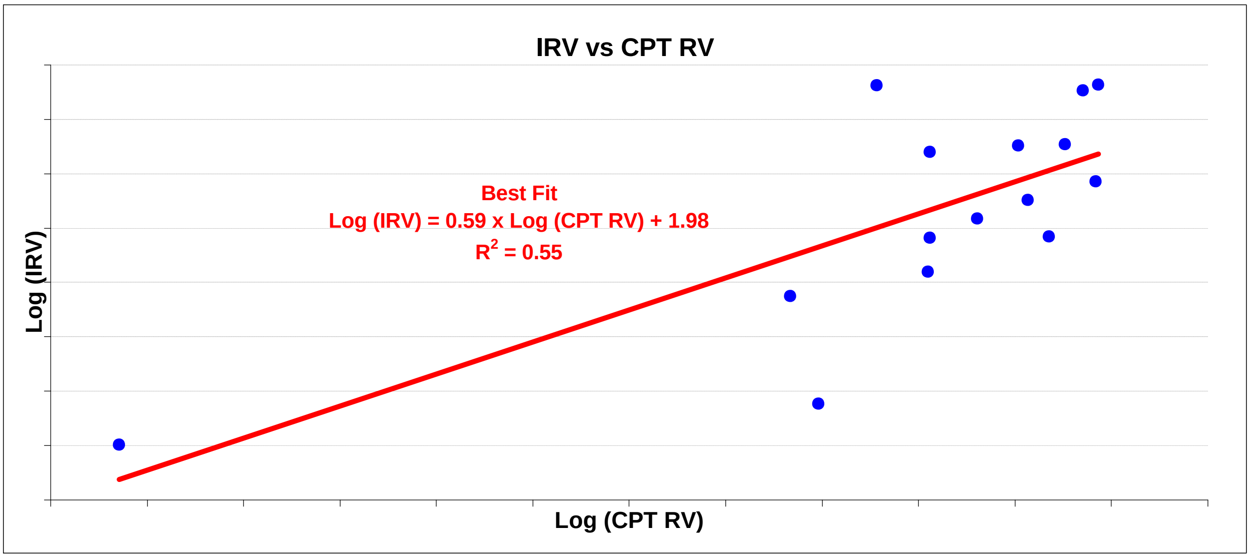
A plot of Vascular Surgery's IRVs against CPT RV is set out in Figure 5.3. The fit is very poor (R^2= 0.33). There are a number of outliers which should be investigated. These are MBS item numbers 34157, 44370 and 44373.

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit is still poor explaining 55% of the variation as against 33% previously. There are two outliers which should be investigated. These are MBS item number 44358 in addition to MBS item number 34157, which was mentioned previously.

Figure 5.4



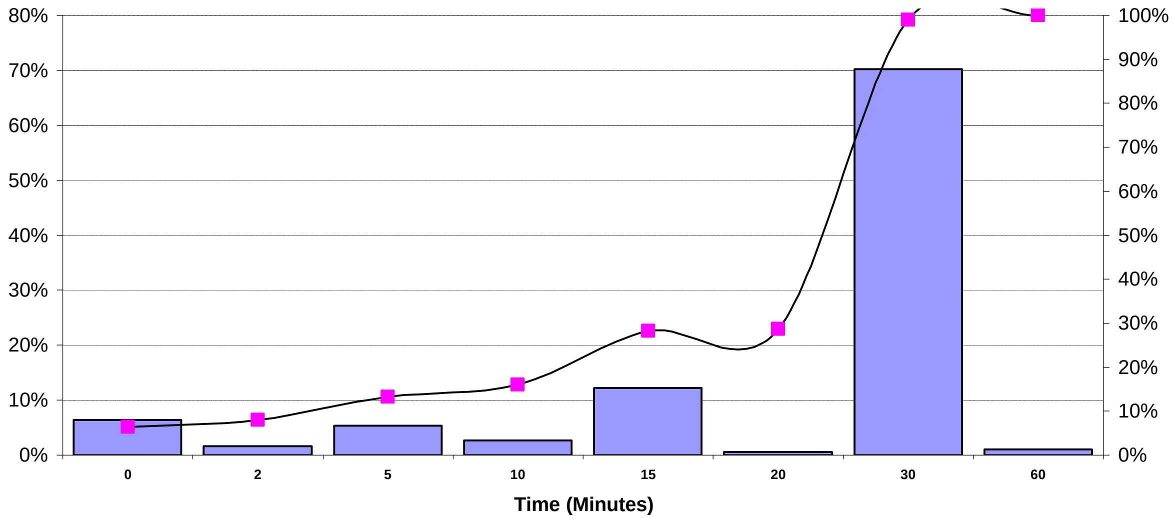
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	12	6.4%	6.4%
2	3	1.6%	8.0%
5	10	5.3%	13.3%
10	5	2.7%	16.0%
15	23	12.2%	28.2%
20	1	0.5%	28.7%
30	132	70.2%	98.9%
60	2	1.1%	100.0%
Total	188	100.0%	

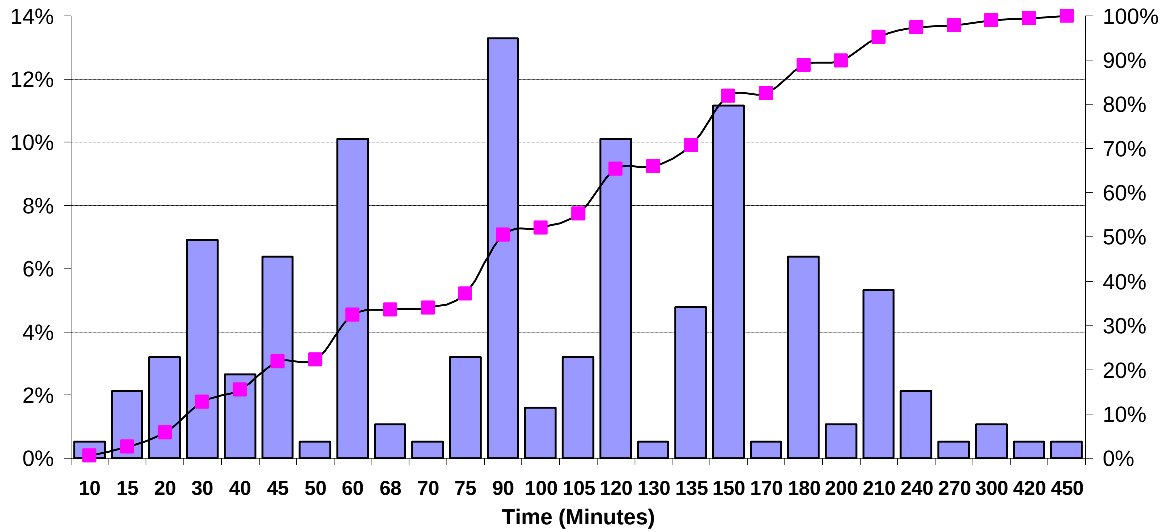
Number of missing values = 0



Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
10	1	0.5%	0.5%
15	4	2.1%	2.7%
20	6	3.2%	5.9%
30	13	6.9%	12.8%
40	5	2.7%	15.4%
45	12	6.4%	21.8%
50	1	0.5%	22.3%
60	19	10.1%	32.4%
68	2	1.1%	33.5%
70	1	0.5%	34.0%
75	6	3.2%	37.2%
90	25	13.3%	50.5%
100	3	1.6%	52.1%
105	6	3.2%	55.3%
120	19	10.1%	65.4%
130	1	0.5%	66.0%
135	9	4.8%	70.7%
150	21	11.2%	81.9%
170	1	0.5%	82.4%
180	12	6.4%	88.8%
200	2	1.1%	89.9%
210	10	5.3%	95.2%
240	4	2.1%	97.3%
270	1	0.5%	97.9%
300	2	1.1%	98.9%
420	1	0.5%	99.5%
450	1	0.5%	100.0%
Total	188	100.0%	

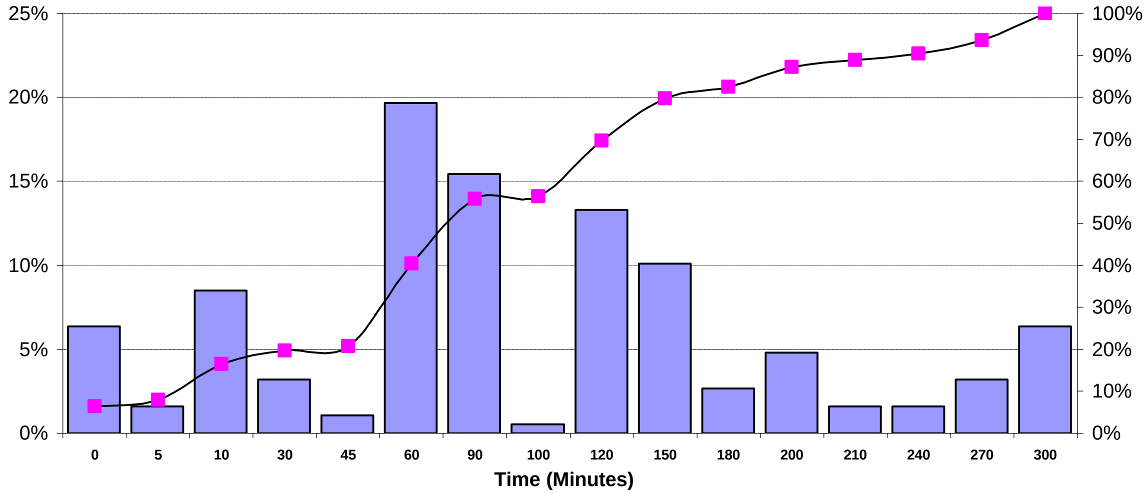


Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	12	6.4%	6.4%
5	3	1.6%	8.0%
10	16	8.5%	16.5%
30	6	3.2%	19.7%
45	2	1.1%	20.7%
60	37	19.7%	40.4%
90	29	15.4%	55.9%
100	1	0.5%	56.4%
120	25	13.3%	69.7%
150	19	10.1%	79.8%
180	5	2.7%	82.4%
200	9	4.8%	87.2%
210	3	1.6%	88.8%
240	3	1.6%	90.4%
270	6	3.2%	93.6%
300	12	6.4%	100.0%
Total	188	100.0%	



Number of missing values = 0

Attachment 2

COMPARISON OF VASCULAR SURGERY (VASC) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x VASC/OTE
	ID	Type	Definition of Time *		VASC	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	31	81.1	91.5	88.7
	H6	Priv	Knife to Skin -to- Drapes Removed	5	72.0	54.9	131.2
	H11	Priv	Pt Prepped -to- Drapes Remove	25	100.8	135.8	74.2
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	14	78.2	80.5	97.1
	H8	Priv	Pt Positioned -to- Drapes Removed	35	99.3	81.6	121.7
	H10	Priv	Pt Positioned -to- Drapes Removed	17	85.9	77.7	110.6
	H13	Priv	Pt Positioned -to- Drapes Removed	6	60.0	55.1	108.9
	H15	Priv	Pt Positioned -to- Drapes Removed	62	102.1	81.4	125.5
	H16	Pub	Pt Positioned -to- Dressing Applied	75	109.0	105.9	102.9
	H17	Pub	Surgeon with Pt -to- Drapes Removed	90	108.5	108.2	100.3
	H18	Priv	Pt Positioned -to- Drapes Removed	39	95.3	91.4	104.2
	H19	Pub	Pt Positioned -to- Dressing Applied	53	106.3	115.7	91.9
	H20	Pub	Pt Positioned -to- Dressing Applied	47	105.7	95.1	111.2
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	43	110.0	109.3	100.7
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	47	94.5	106.8	88.5
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	13	98.1	95.5	102.7
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	36	97.4	87.4	111.4
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	48	100.0	108.7	92.0
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	8	50.6	51.0	99.4
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	7	60.0	63.3	94.8
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	63	102.9	88.3	116.5
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	77	108.1	114.3	94.6
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	91	108.8	116.7	93.2
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	41	93.8	98.4	95.3
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	70	99.6	120.2	82.9
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	47	105.7	107.2	98.7
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staf	47	94.5	114.8	82.3
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	14	80.4	112.5	71.5
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	34	76.5	133.2	57.4
	H6	Priv	Prep. Anaes. -to- Drapes Removed	5	72.0	66.1	109.0
	H8	Priv	Prep. Anaes. -to- Drapes Removed	35	99.3	106.3	93.4
	H10	Priv	Prep. Anaes. -to- Drapes Removed	18	86.1	100.0	86.1
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	8	56.3	70.8	79.5
	H15	Priv	Induction of Anaes -to- Drapes Removed	65	99.9	98.5	101.5
	H16	Pub	Prep. Anaes. -to- Dressing Applied	77	108.1	129.7	83.4
	H17	Pub	Prep. Anaes. -to- Drapes Removed	90	106.8	141.5	75.5
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	41	93.8	110.7	84.8
	H19	Pub	Prep. Anaes. -to- Dressing Applied	56	104.9	150.5	69.7
	H20	Pub	Prep. Anaes. -to- Dressing Applied	47	105.7	124.9	84.7
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	47	94.5	117.6	80.4
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	14	93.9	106.9	87.9
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	172	117.0	166.6	70.2
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	45	96.7	138.2	70.0
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	36	97.4	111.3	87.5
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	49	99.8	124.8	80.0
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	8	50.6	63.0	80.3
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	27	101.1	166.0	60.9
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	9	75.0	116.0	64.7
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	98	100.8	139.9	72.0
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	66	100.7	105.2	95.7
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	77	108.1	137.8	78.5
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	90	106.8	150.4	71.0
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	71	99.4	151.7	65.5
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	47	105.7	137.3	77.0
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	47	94.5	125.6	75.2
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	112	113.3	129.2	87.7
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	54	97.8	111.0	88.2
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	4	71.3	96.9	73.5
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	27	101.1	187.4	53.9
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	8	56.3	73.9	76.1
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	65	100.4	125.8	79.8
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	41	93.8	118.5	79.2
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	70	101.3	174.2	58.2
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	20	74.4	47.3	157.2
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	32	64.5	59.1	109.1
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	4	52.5	39.6	132.5

* Definition of Time
- see Attachment A

**** Median ratio of VASC intra time estimates to OPT**
Unweighted = 102.9 %
Weighted (for number of items in common) = 102.9 %

ATTACHMENT A

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST			PT ENTERS OP SUITE	PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME								END OP TIME		XFER TO RECOV	XFER FROM RECOV
ID	TIME	TYPE		Anaesth. arrives to talk to Pt	Anaesth. prepares Pt for anaes- cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is positioned	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
Hosp4	H4OST	Priv																
Hosp6	H6OST	Priv																
Hosp11	H11OST	Priv																
Hosp1	H1OPT	Priv																
Hosp8	H8OPT	Priv																
Hosp10	H10OPT	Priv																
Hosp13	H13OPT	Priv																
Hosp15	H15OPT	Priv																
Hosp16	H16OPT	Pub																
Hosp17	H17OPT	Pub																
Hosp18	H18OPT	Priv																
Hosp19	H19OPT	Pub																
Hosp20	H20OPT	Pub																
APHA	APHAOPT	Priv																
CANS	CANSOPT	Pub & Priv																
Deloitte	DTOPT	Pub & Priv																
Hosp8	H8OPT2	Priv																
Hosp9A	H9AOPT2	Priv																
Hosp9B	H9BOPT2	Priv/Day																
Hosp13	H13OPT2	Priv																
Hosp15	H15OPT2	Priv																
Hosp16	H16OPT2	Pub																
Hosp17	H17OPT2	Pub																
Hosp18	H18OPT2	Priv																
Hosp19	H19OPT2	Pub																
Hosp20	H20OPT2	Pub																
CANS	CANSOPT2	Pub & Priv																
Hosp1	H1OAT	Priv																
Hosp4	H4OAT	Priv																
Hosp6	H6OAT	Priv																
Hosp8	H8OAT	Priv																
Hosp10	H10OAT	Priv																
Hosp13	H13OAT	Priv																
Hosp15	H15OAT	Pub																
Hosp16	H16OAT	Pub																
Hosp17	H17OAT	Priv																
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub																
Hosp20	H20OAT	Pub & Priv																
CAnS	CANSOAT	Pub & Priv																
Deloitte	DTOAT	Pub & Priv																
MBS	MBSOAT2	Pub & Priv																
Hosp5	H5OAT2	Priv																
Hosp7	H7OAT2	Priv/Day																
Hosp8	H8OAT2	Priv																
Hosp9A	H9AOAT2	Priv																
Hosp9B	H9BOAT2	Priv/Day																
Hosp11	H11OAT2	Priv																
Hosp12	H12OAT2	Pub																
Hosp14	H14OAT2	Pub																
Hosp15	H15OAT2	Priv																
Hosp16	H16OAT2	Pub																
Hosp17	H17OAT2	Pub																
Hosp19	H19OAT2	Pub																
Hosp20	H20OAT2	Pub																
CANS	CANSOAT2	Pub & Priv																
WAGroup	WAOAT2	Priv																
Hosp2	H2THT	Priv																
Hosp3	H3THT	Pub																
Hosp11	H11THT	Pub																
Hosp13	H13THT	Priv																
Hosp15	H15THT	Priv																
Hosp18	H18THT	Priv																
Hosp19	H19THT	Day & Other																
C'mix -Pub	CMXPUTHT	Priv																
C'mix -Pte	CMXPVTHT	Priv																
C'mix-oth	CMXOTTHT	Priv																

KEY: | = Hospitals where start/end times are defined by > 1 pathway time option

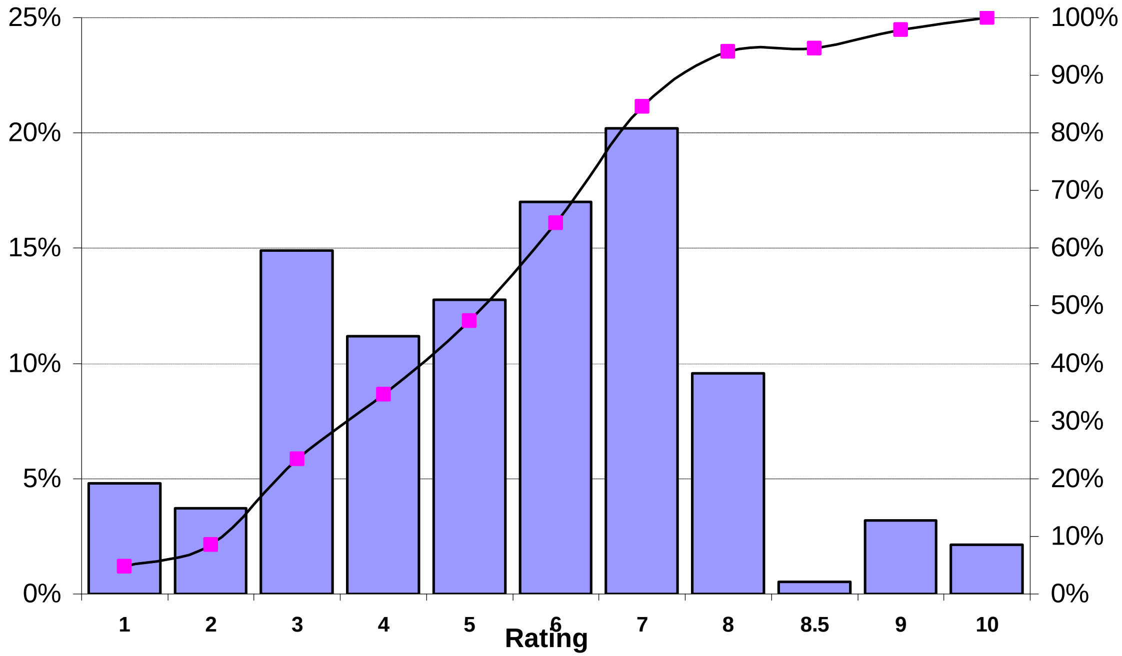
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
1	9	4.8%	4.8%
2	7	3.7%	8.5%
3	28	14.9%	23.4%
4	21	11.2%	34.6%
5	24	12.8%	47.3%
6	32	17.0%	64.4%
7	38	20.2%	84.6%
8	18	9.6%	94.1%
8.5	1	0.5%	94.7%
9	6	3.2%	97.9%
10	4	2%	100.0%
Total	188	100.0%	

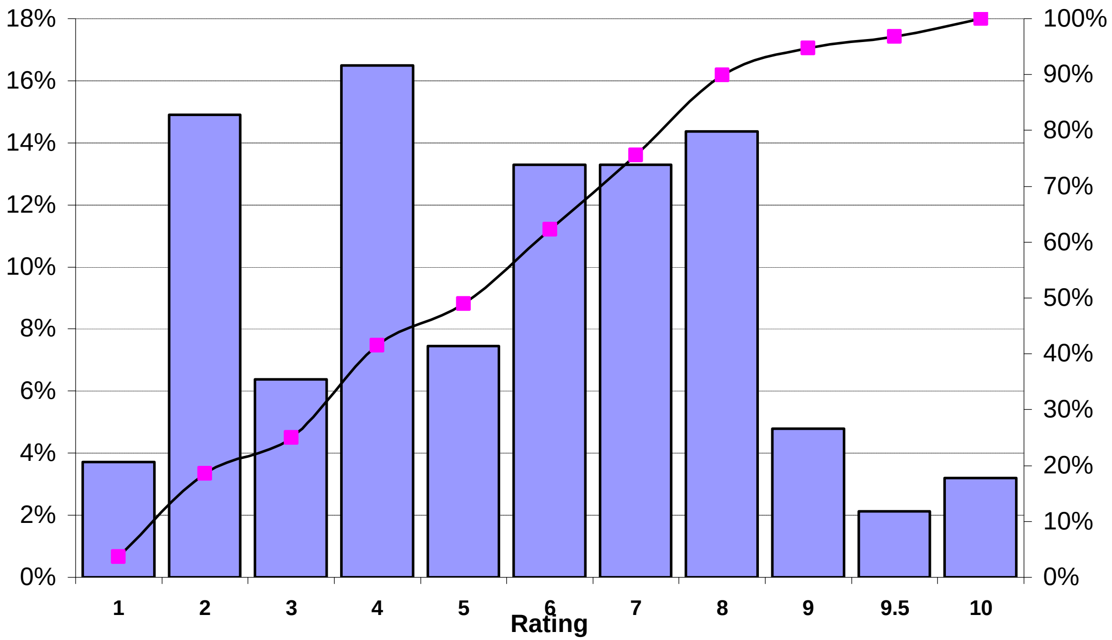
Number of missing values = 0



Attachment 3 - Continued

Summary Report for Technical skill etc.

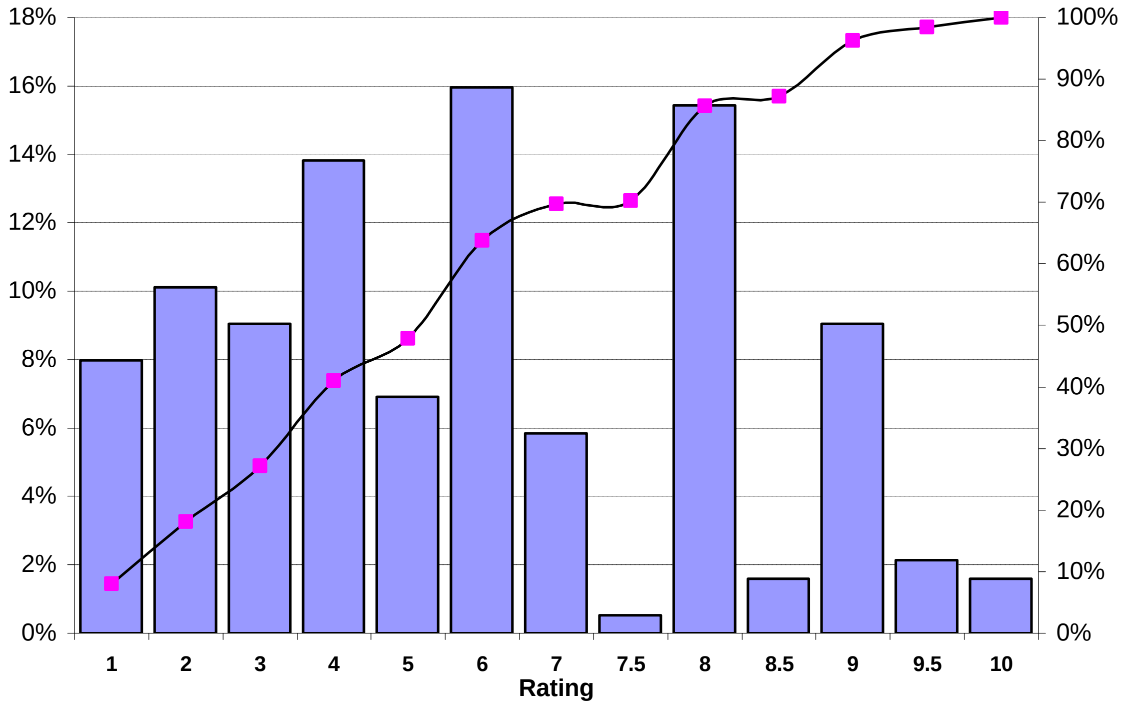
Rating	Freq.	Percentage	Cum. Percentage
1	7	3.7%	3.7%
2	28	14.9%	18.6%
3	12	6.4%	25.0%
4	31	16.5%	41.5%
5	14	7.4%	48.9%
6	25	13.3%	62.2%
7	25	13.3%	75.5%
8	27	14.4%	89.9%
9	9	4.8%	94.7%
9.5	4	2.1%	96.8%
10	6	3%	100.0%
Total	188	100.0%	



Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
1	15	8.0%	8.0%
2	19	10.1%	18.1%
3	17	9.0%	27.1%
4	26	13.8%	41.0%
5	13	6.9%	47.9%
6	30	16.0%	63.8%
7	11	5.9%	69.7%
7.5	1	0.5%	70.2%
8	29	15.4%	85.6%
8.5	3	1.6%	87.2%
9	17	9.0%	96.3%
9.5	4	2.1%	98.4%
10	3	1.6%	100.0%
Total	188	100.0%	



Attachment 4 - Links with Other Specialties

The number of link items between Vascular Surgery and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	1	7	8
Oral and Maxillo-facial Surgery	0	6	6
Obstetrics / Gynaecology	0	0	0
General Surgery	4	7	11
Cardio Thoracic Surgery	1	0	1
Neurosurgery	2	7	9
Orthopaedic surgery	2	7	9
Paediatric Surgery	0	6	6
Plastic Surgery	1	0	1
Urology	2	0	2
Ophthalmology	0	0	0
ENT	0	3	3
Anaesthesia	0	7	7
Dermatology	0	7	7
Paediatric / Thoracic Medicine	0	7	7
General Medicine	0	7	7
Cardiology, Renal, ICU	0	0	0
Radiation, Oncology	0	7	7
Gastroenterology	0	7	7
Neurology	0	7	7
Haematology, Medical Oncology	0	7	7
Psychiatry	0	7	7
Total	13	7	20

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Opthalmology

Summary Status Report

February 2000

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Opthalmology Consensus Group.

The Opthalmology Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 228 items. These comprised 171 procedure items and 57 consultation items.

Analysis of this information showed:

- The median ratio of Opthalmology's intra time estimates to NCCH's Theatre Time Database observed procedure times was 129.2%. This implies a tendency to over estimate intra times.

- The procedure items were given very much higher ranks than the consultation items ($p < 0.001$).

- The ranks given to link items were very much lower than those given to non-link items ($p < 0.001$).

- The ranks given to good map items were very much higher than those given to poor/no map items ($p < 0.001$).

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 3.8.

- Given the comparatively low ranking of the link items, it could be difficult to align the group's rankings and ratings with those of the other groups.

- Consultation items were given very much lower imputed relative values[1] than procedure items.

- The link items were given very much lower imputed relative values than the non-link items.

- The imputed relative values given to good map items were very much higher than those given to the poor/no map items.

- The correlation between the imputed relative values for Opthalmology and schedule fee was good ($R^2 = 95\%$).

- The correlation between the imputed relative values for Opthalmology and CPT RV was reasonable ($R^2 = 72\%$).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Opthalmology are set out in Table 2.1 together with associated standard deviations and ranges.

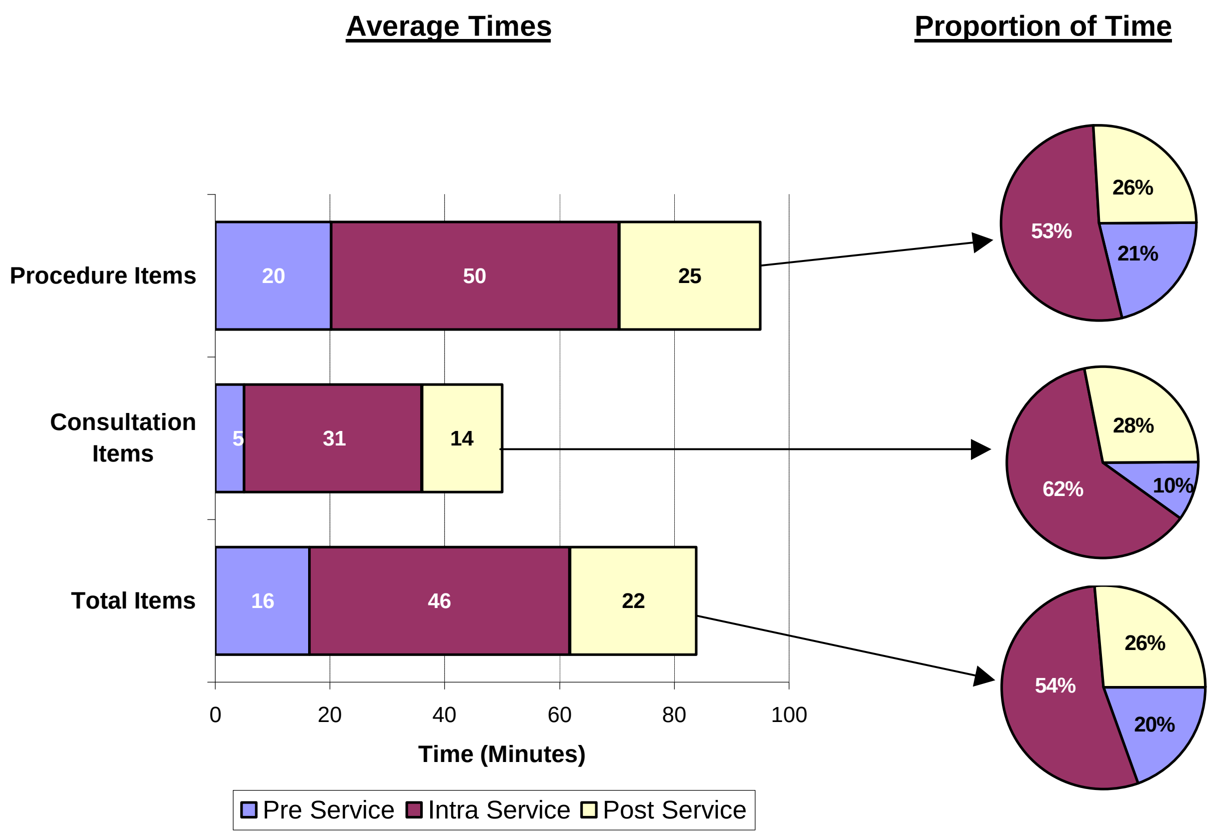
The mean intra service time was 46 minutes and the mean total time was 84 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	16	46	22	84
SD	10	33	14	53
Min	2	5	0	13
Max	35	180	60	275

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	20.1	50.3	24.7	95.1
Consultation Items	5.0	31.1	14.1	50.2
Total Items	16.4	45.5	22.0	83.9

Opthalmology's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Opthalmology's intra time estimates to the observed procedure times was 129.2%. This implies a tendency by this Consensus Group to over estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Opthalmology are set out in Table 3.1 together with associated standard deviations and ranges.

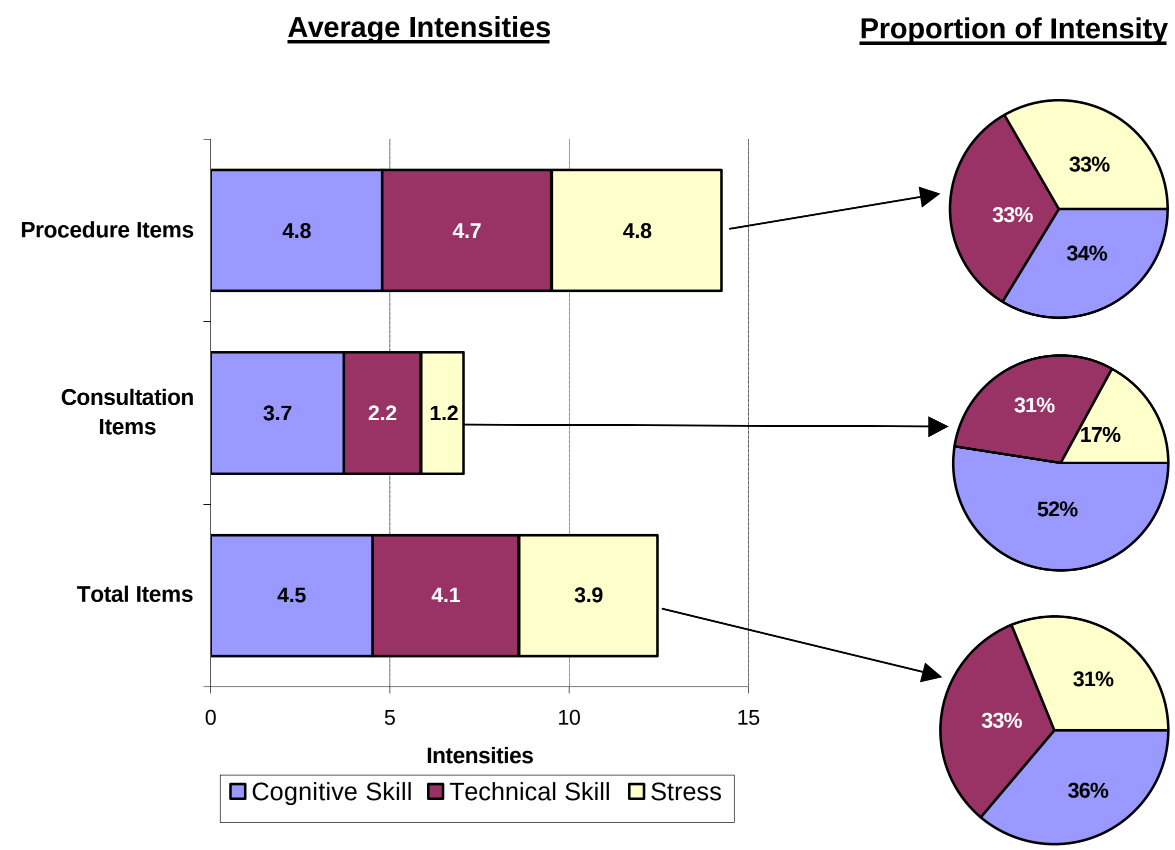
The mean ratings were 4.5 for cognitive skill, 4.1 for technical skill and 3.9 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	4.5	4.1	3.9	12.5
SD	1.8	2.3	2.4	6.3
Min	1.6	0.6	0.9	3.5
Max	9.9	9.9	9.8	29.6

A graphical presentation of these mean ratings together with the percentage apportionments of total intensity are contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	4.8	4.7	4.8	14.3
Consultation Items	3.7	2.2	1.2	7.1
Total Items	4.5	4.1	3.9	12.5

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given very much higher ranks than the consultation items (sum of ranks test, $p < 0.001$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	171	1	223	98.2
Consultation	57	102	228	163.3
Total	228	1	228	114.5

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Opthalmology Consensus Group assessed 74 link items. These comprised 55 of the 57 consultation items and 19 of the 171 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were very much lower than those given to non-link items (sum of ranks test, $p < 0.001$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation-Link	55	102	228	163.9
Procedure-Link	19	33	221	122.8
Total Link	74	33	228	153.4
Consultation - Non-Link	2	146	147	146.5
Procedure - Non-link	152	1	223	95.2
Total Non-Link	154	1	223	95.8
Total	228	1	228	114.5

Good maps of Opthalmology's items to CPT were available for 60 of their 228 items. A breakdown of the ranks given to these good map items and to the poor/no map items is se out in Table 4.3. The ranks given to the good map items were very much higher than those given to the poor/no map items.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	60	3	223	86.5
Poor/No Map	168	1	228	124.5
Total	228	1	228	114.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analyzed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Ophthalmology is 1 to 49.9.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the potential range in relative rates of pay is 1 to 4.1. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the actual range in relative rates of pay is 1 to 3.8.

Opthalmology is the only specialty whose actual range in relative rates of pay is lower than the potential range depending on intensity alone. This has occurred as a result of a higher proportion of intra time being allocated to the lowest intensity items than ot the highest.

When compared with specialties examined so far, the first range in relative rates of pay is slightly higher than the median[3] and the second is lower. In terms of deviations in rates of pay, it should be possible to align Opthalmology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 4.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.8.

Comparisons between consultation and procedure items, between link items and non link items and between good map items and poor/no map items in terms of imputed relative value (IRV) are set out in Table 5.1.

The consultation items were given imputed relative values that were very much lower than those given to the procedure items (t tests, $p < 0.001$). The link items were given very much lower imputed relative values than the non-link items (t tests, $p < 0.001$) and the good map items were given imputed relative values that were very much higher than those given to poor/no map items (t tests, $p < 0.001$).

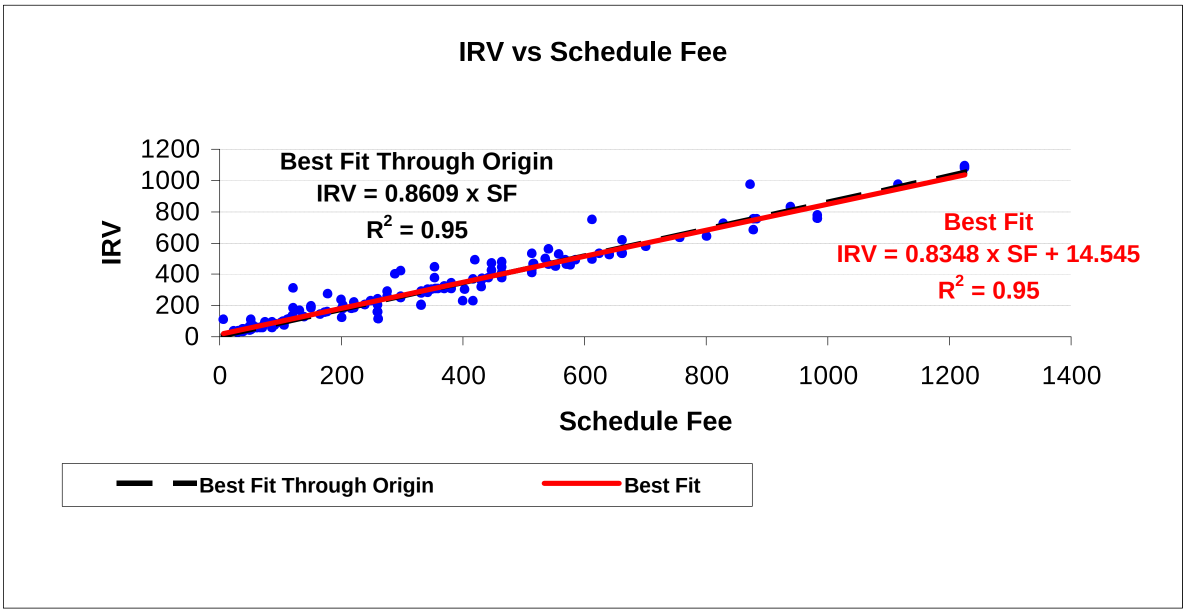
Table 5.1

	Number	IRVs				
Type of Item	**Reviewed**	**Mean**	**±**	**SD**	**Low**	**High**
Procedure	171	299	±	234	31	1096
Consultation	57	98	±	51	22	190
Link	74	124	±	97	22	497
Non-link	154	309	±	239	31	1096
Good Map	60	335	±	234	31	977
Poor/No Map	168	218	±	209	22	1096
Total	228	249	±	222	22	1096

A plot of Opthalmology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is good ($R^2 = 0.95$)[4]. However there are three outliers, MBS item numbers 42536, 42539 and 42755 which should be investigated.

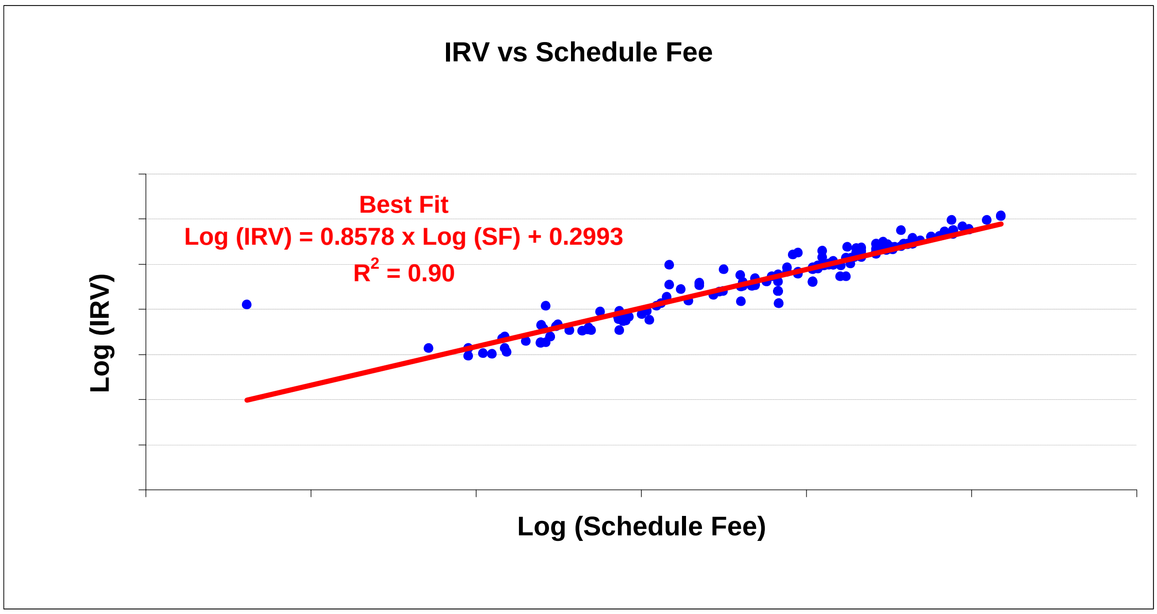
[4] An R^2 value of 0.95 means that the line explains 95% of the variation.

Figure 5.1



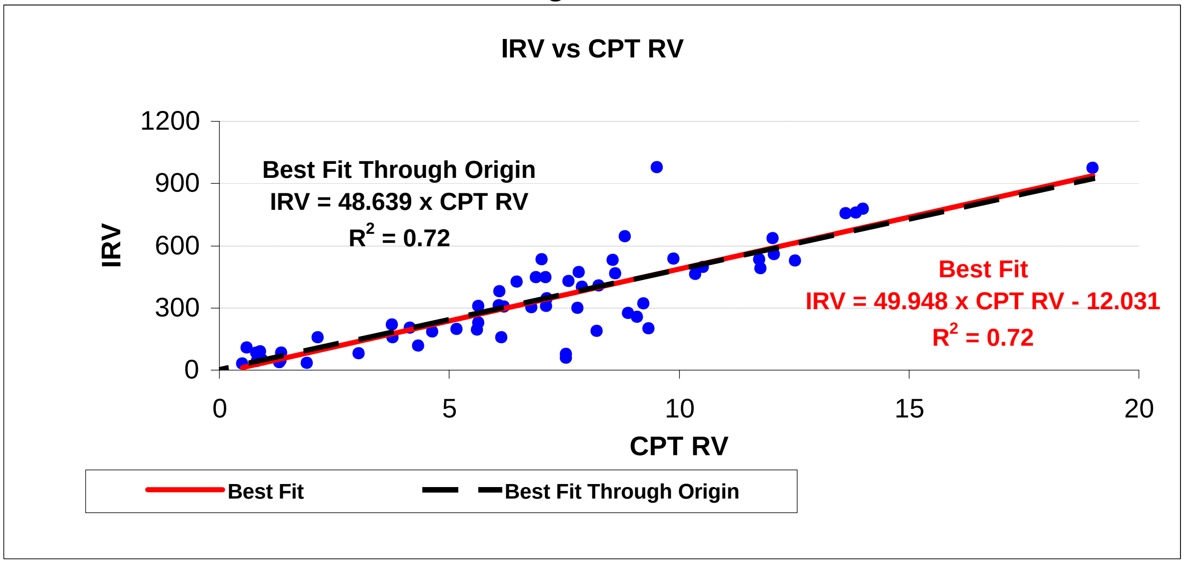
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is explains 90% of the variation as against 95% previously. There is one outlier, MBS item number 10815 which should be investigated.

Figure 5.2



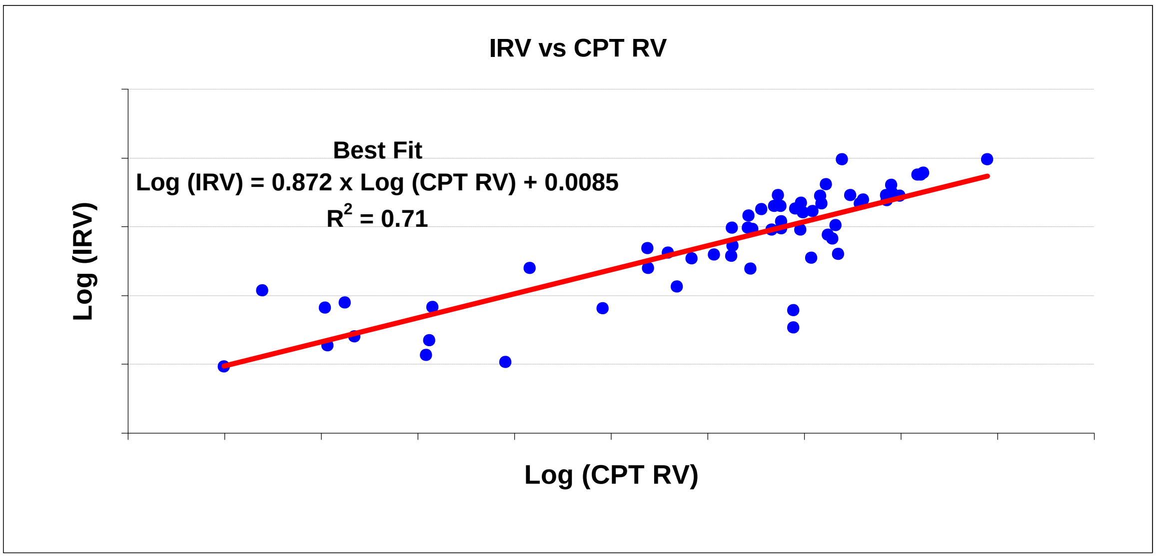
A plot of Opthalmology's IRVs against CPT RV is set out in Figure 5.3. The fit is reasonable (R^2= 0.72) and the results are consistent with a simple proportional relationship between the scales. There are seven outliers, MBS item numbers 42608, 42689, 42731, 42767, 42773, 42803 and 42809 which should be investigated.

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit explains 71% of the variation as against 72% previously. There are five outliers which should be investigated. These are MBS item numbers11212 and 42827 in addition to 42689, 42731 and 42803 which were mentioned previously.

Figure 5.4



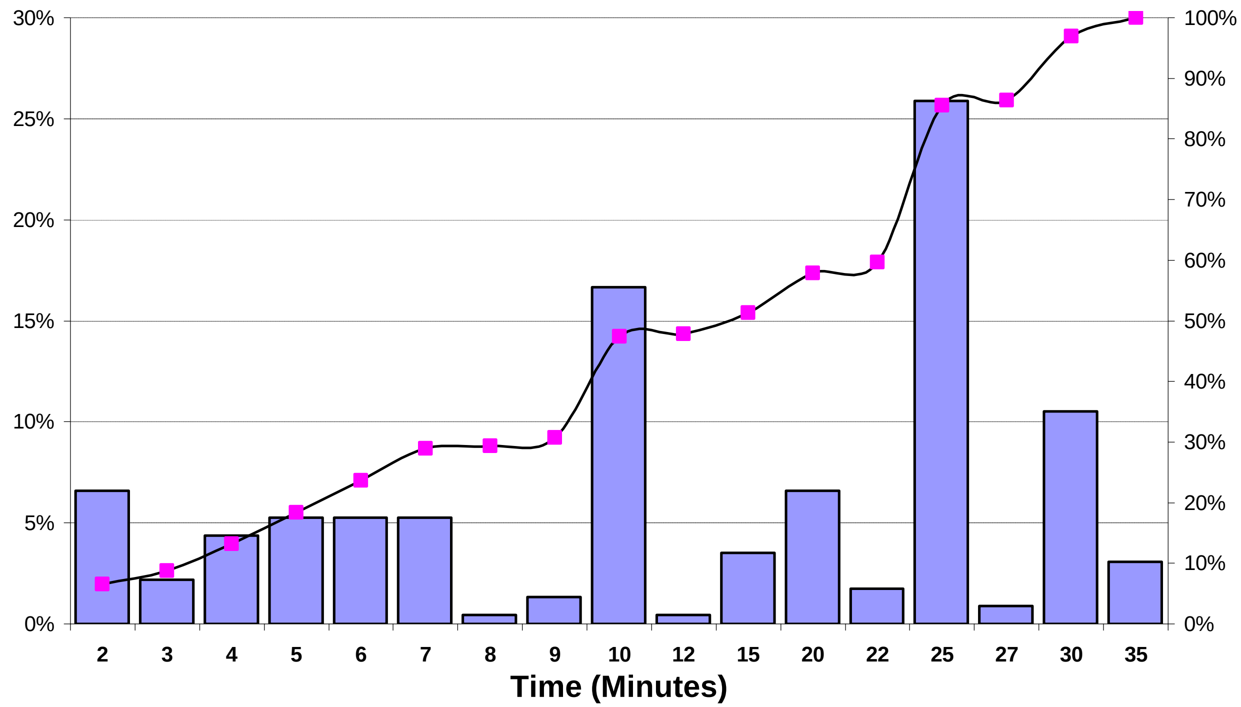
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre Service Time

Time	Freq	Percentage	Cum. Percentage
2	15	6.6%	6.6%
3	5	2.2%	8.8%
4	10	4.4%	13.2%
5	12	5.3%	18.4%
6	12	5.3%	23.7%
7	12	5.3%	28.9%
8	1	0.4%	29.4%
9	3	1.3%	30.7%
10	38	16.7%	47.4%
12	1	0.4%	47.8%
15	8	3.5%	51.3%
20	15	6.6%	57.9%
22	4	1.8%	59.6%
25	59	25.9%	85.5%
27	2	0.9%	86.4%
30	24	10.5%	96.9%
35	7	3.1%	100.0%
Total	228	100.0%	

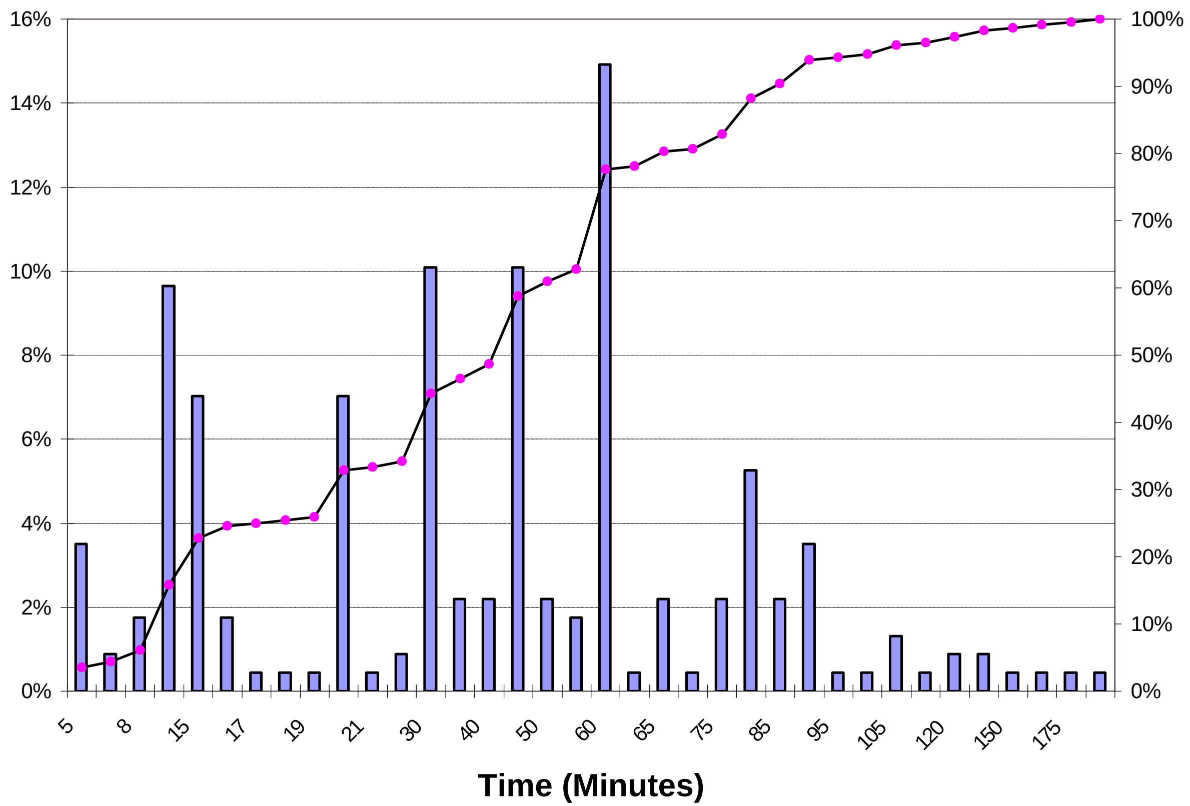
Number of missing values = 0



Attachment 1 - Continued

Summary Report for Intra Service Time

Time	Freq	Percentage	Cum. Percentage
5	8	3.5%	3.5%
6	2	0.9%	4.4%
8	4	1.8%	6.1%
10	22	9.6%	15.8%
15	16	7.0%	22.8%
16	4	1.8%	24.6%
17	1	0.4%	25.0%
18	1	0.4%	25.4%
19	1	0.4%	25.9%
20	16	7.0%	32.9%
21	1	0.4%	33.3%
25	2	0.9%	34.2%
30	23	10.1%	44.3%
35	5	2.2%	46.5%
40	5	2.2%	48.7%
45	23	10.1%	58.8%
50	5	2.2%	61.0%
55	4	1.8%	62.7%
60	34	14.9%	77.6%
61	1	0.4%	78.1%
65	5	2.2%	80.3%
70	1	0.4%	80.7%
75	5	2.2%	82.9%
80	12	5.3%	88.2%
85	5	2.2%	90.4%
90	8	3.5%	93.9%
95	1	0.4%	94.3%
100	1	0.4%	94.7%



(continued next page)

105	3	1.3%	96.1%
110	1	0.4%	96.5%
120	2	0.9%	97.4%
122	2	0.9%	98.2%
150	1	0.4%	98.7%
160	1	0.4%	99.1%
175	1	0.4%	99.6%
180	1	0.4%	100.0%
Total	228	100.0%	

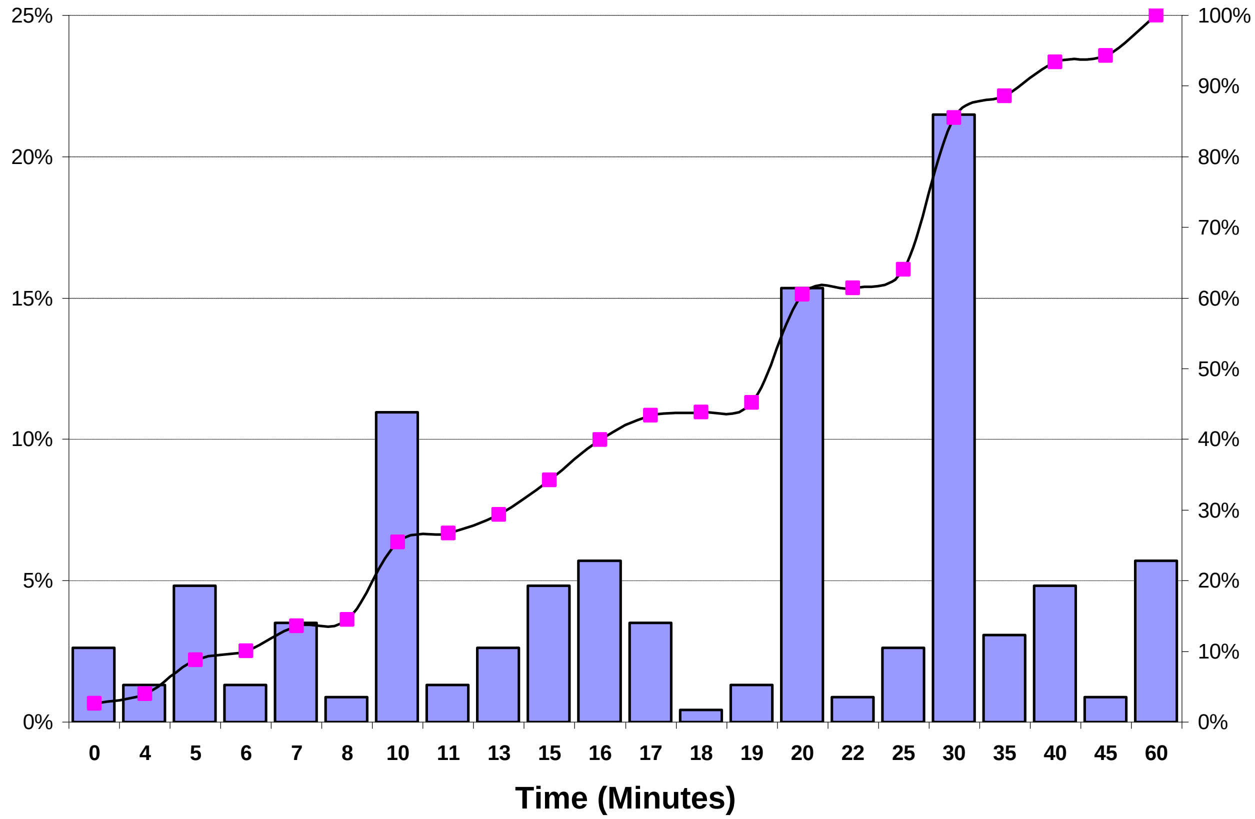
Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post Service Time

Time	Freq	Percentage	Cum. Percentage
0	6	2.6%	2.6%
4	3	1.3%	3.9%
5	11	4.8%	8.8%
6	3	1.3%	10.1%
7	8	3.5%	13.6%
8	2	0.9%	14.5%
10	25	11.0%	25.4%
11	3	1.3%	26.8%
13	6	2.6%	29.4%
15	11	4.8%	34.2%
16	13	5.7%	39.9%
17	8	3.5%	43.4%
18	1	0.4%	43.9%
19	3	1.3%	45.2%
20	35	15.4%	60.5%
22	2	0.9%	61.4%
25	6	2.6%	64.0%
30	49	21.5%	85.5%
35	7	3.1%	88.6%
40	11	4.8%	93.4%
45	2	0.9%	94.3%
60	13	5.7%	100.0%
Total	228	100.0%	

Number of missing values = 0



COMPARISON OF OPTHALMOLOGY (OPH) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x OPH/OTE
	ID	Type	Definition of Time *		OPH	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	42	53.3	32.0	166.4
	H6	Priv	Knife to Skin -to- Drapes Removed	2	50.0	43.0	116.3
	H11	Priv	Pt Prepped -to- Drapes Remove	4	65.3	59.5	109.7
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	2	50.0	35.6	140.3
	H8	Priv	Pt Positioned -to- Drapes Removed	29	45.0	36.1	124.9
	H10	Priv	Pt Positioned -to- Drapes Removed	7	42.1	27.9	151.1
	H13	Priv	Pt Positioned -to- Drapes Removed	21	47.9	42.2	113.5
	H15	Priv	Pt Positioned -to- Drapes Removed	9	40.0	29.9	133.6
	H16	Pub	Pt Positioned -to- Dressing Applied	50	62.4	52.8	118.2
	H17	Pub	Surgeon with Pt -to- Drapes Removed	36	57.0	40.8	139.6
	H18	Priv	Pt Positioned -to- Drapes Removed	67	59.3	39.3	150.7
	H19	Pub	Pt Positioned -to- Dressing Applied	21	59.8	46.2	129.2
	H20	Pub	Pt Positioned -to- Dressing Applied	39	62.7	38.1	164.8
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	42	57.0	51.0	111.7
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	46	62.3	49.2	126.8
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	16	56.6	42.4	133.5
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	29	45.0	39.2	114.9
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	1	45.0	60.0	75.0
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	36	60.4	38.1	158.5
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	20	48.8	47.0	103.7
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	9	40.0	32.0	125.2
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	51	61.9	58.4	105.9
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	36	56.8	46.4	122.4
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	68	58.3	41.7	139.9
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	43	62.5	47.3	132.2
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	41	62.4	44.4	140.4
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staf	47	61.2	53.0	115.5
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	2	50.0	43.1	115.9
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	46	56.0	56.7	98.8
	H6	Priv	Prep. Anaes. -to- Drapes Removed	2	50.0	51.5	97.1
	H8	Priv	Prep. Anaes. -to- Drapes Removed	29	45.0	44.7	100.8
	H10	Priv	Prep. Anaes. -to- Drapes Removed	7	42.1	49.7	84.8
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	20	49.3	56.0	88.0
	H15	Priv	Induction of Anaes -to- Drapes Removed	8	39.4	36.3	108.5
	H16	Pub	Prep. Anaes. -to- Dressing Applied	50	64.3	67.9	94.7
	H17	Pub	Prep. Anaes. -to- Drapes Removed	40	61.6	68.2	90.3
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	68	58.8	46.8	125.6
	H19	Pub	Prep. Anaes. -to- Dressing Applied	23	63.3	66.0	96.0
	H20	Pub	Prep. Anaes. -to- Dressing Applied	40	63.4	55.5	114.3
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	48	61.2	60.4	101.3
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	16	56.6	51.8	109.3
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	143	56.5	69.1	81.7
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	18	49.9	49.0	101.8
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	13	55.0	43.0	128.0
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	30	46.4	52.2	88.8
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	1	45.0	80.0	56.3
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	38	61.1	59.7	102.4
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	4	65.3	75.0	87.0
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	2	27.5	35.6	77.3
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	43	60.6	68.3	88.8
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	8	39.4	38.6	102.1
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	50	64.3	73.7	87.4
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	40	63.3	75.0	84.4
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	46	61.6	64.1	96.2
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	40	63.4	60.7	104.4
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	48	61.2	65.3	93.7
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	117	60.2	44.6	134.9
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	34	55.7	45.5	122.5
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	8	35.0	43.0	81.5
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	4	65.3	91.0	71.7
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	20	49.3	59.2	83.3
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	7	44.3	60.9	72.8
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	70	59.3	51.3	115.6
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	47	61.2	77.5	78.9
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	59	51.3	37.8	135.7
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	105	56.3	48.0	117.3
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	16	50.6	38.8	130.4

* Definition of Time
 - see Attachment A

**** Median ratio of OPH intra time estimates to OPT**
Unweighted = 133.5 %
Weighted (for number of items in common) = 129.2 %

Attachment A

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST			PT ENTERS OP SUITE	PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME								END OP TIME		XFER TO RECOV	XFER FROM RECOV
ID	TIME	TYPE		Anaesth. arrives to talk to Pt	Anaesth. prepares Pt for anaes-cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is positioned	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
Hosp4	H4OST	Priv																
Hosp6	H6OST	Priv																
Hosp11	H11OST	Priv																
Hosp1	H1OPT	Priv																
Hosp8	H8OPT	Priv																
Hosp10	H10OPT	Priv																
Hosp13	H13OPT	Priv																
Hosp15	H15OPT	Priv																
Hosp16	H16OPT	Pub																
Hosp17	H17OPT	Pub																
Hosp18	H18OPT	Priv																
Hosp19	H19OPT	Pub																
Hosp20	H20OPT	Pub																
APHA	APHAOPT	Priv																
CANS	CANSOPT	Pub & Priv																
Deloitte	DTOPT	Pub & Priv																
Hosp8	H8OPT2	Priv																
Hosp9A	H9AOPT2	Priv																
Hosp9B	H9BOPT2	Priv/Day																
Hosp13	H13OPT2	Priv																
Hosp15	H15OPT2	Priv																
Hosp16	H16OPT2	Pub																
Hosp17	H17OPT2	Pub																
Hosp18	H18OPT2	Priv																
Hosp19	H19OPT2	Pub																
Hosp20	H20OPT2	Pub																
CANS	CANSOPT2	Pub & Priv																
Hosp1	H1OAT	Priv																
Hosp4	H4OAT	Priv																
Hosp6	H6OAT	Priv																
Hosp8	H8OAT	Priv																
Hosp10	H10OAT	Priv																
Hosp13	H13OAT	Priv																
Hosp15	H15OAT	Pub																
Hosp16	H16OAT	Pub																
Hosp17	H17OAT	Priv																
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub																
Hosp20	H20OAT	Pub & Priv																
CAnS	CANSOAT	Pub & Priv																
Deloitte	DTOAT	Pub & Priv																
MBS	MBSOAT2	Pub & Priv																
Hosp5	H5OAT2	Priv																
Hosp7	H7OAT2	Priv/Day																
Hosp8	H8OAT2	Priv																
Hosp9A	H9AOAT2	Priv																
Hosp9B	H9BOAT2	Priv/Day																
Hosp11	H11OAT2	Priv																
Hosp12	H12OAT2	Pub																
Hosp14	H14OAT2	Pub																
Hosp15	H15OAT2	Priv																
Hosp16	H16OAT2	Pub																
Hosp17	H17OAT2	Pub																
Hosp19	H19OAT2	Pub																
Hosp20	H20OAT2	Pub																
CANS	CANSOAT2	Pub & Priv																
WAGroup	WAOAT2	Priv																
Hosp2	H2THT	Priv																
Hosp3	H3THT	Pub																
Hosp11	H11THT	Pub																
Hosp13	H13THT	Priv																
Hosp15	H15THT	Priv																
Hosp18	H18THT	Priv																
Hosp19	H19THT	Day & Other																
C'mix -Pub	CMXPUTHT	Priv																
C'mix -Pte	CMXPVTHT	Priv																
C'mix oth	CMXOTHTHT	Priv																

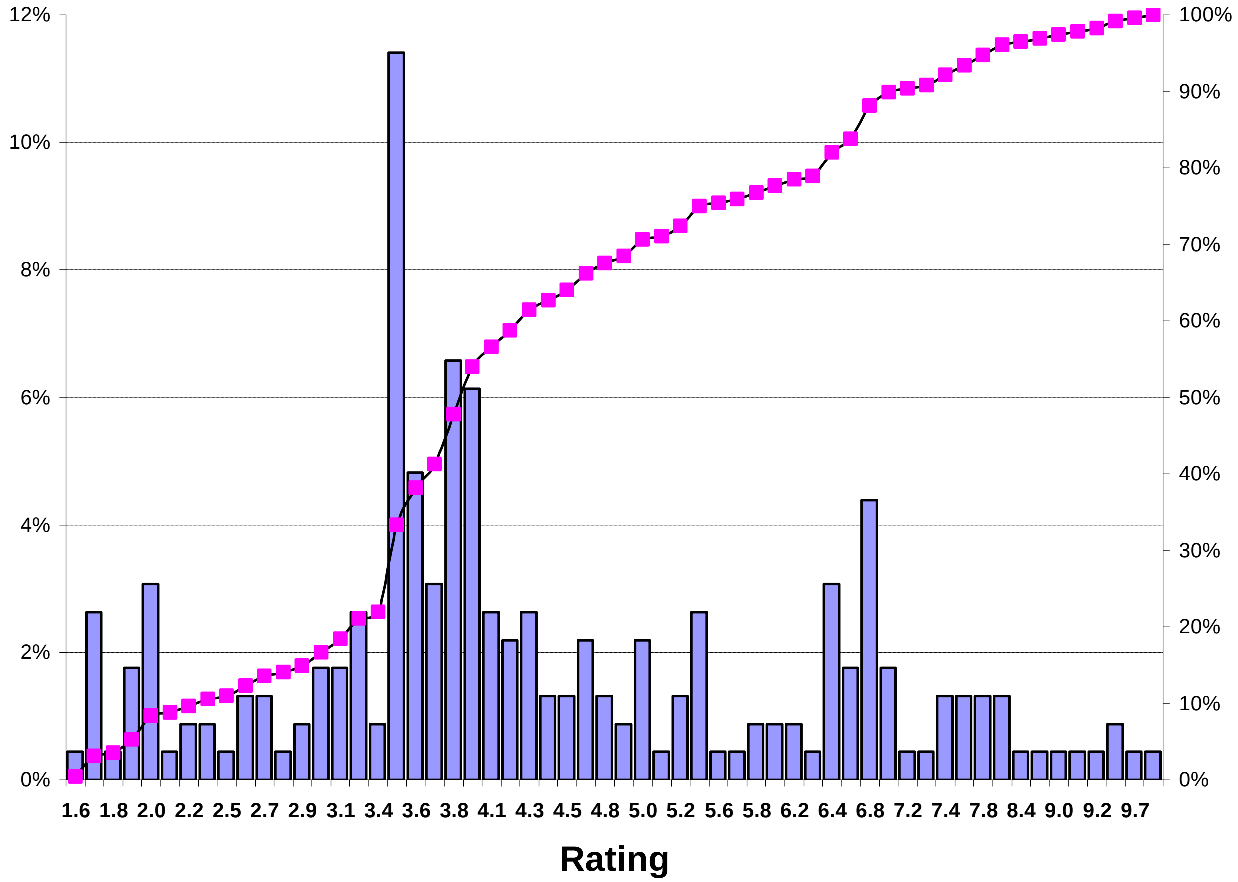
KEY: | = Hospitals where start/end times are defined by > 1 pathway time option

Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group.
The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Frequency	%age	Cume %age
1.6	1	0.4%	0.4%
1.7	6	2.6%	3.1%
1.8	1	0.4%	3.5%
1.9	4	1.8%	5.3%
2.0	7	3.1%	8.3%
2.1	1	0.4%	8.8%
2.2	2	0.9%	9.6%
2.4	2	0.9%	10.5%
2.5	1	0.4%	11.0%
2.6	3	1.3%	12.3%
2.7	3	1.3%	13.6%
2.8	1	0.4%	14.0%
2.9	2	0.9%	14.9%
3.0	4	1.8%	16.7%
3.1	4	1.8%	18.4%
3.3	6	2.6%	21.1%
3.4	2	0.9%	21.9%
3.5	26	11.4%	33.3%
3.6	11	4.8%	38.2%
3.7	7	3.1%	41.2%
3.8	15	6.6%	47.8%
4.0	14	6.1%	53.9%
4.1	6	2.6%	56.6%
4.2	5	2.2%	58.8%
4.3	6	2.6%	61.4%
4.4	3	1.3%	62.7%
4.5	3	1.3%	64.0%
4.7	5	2.2%	66.2%



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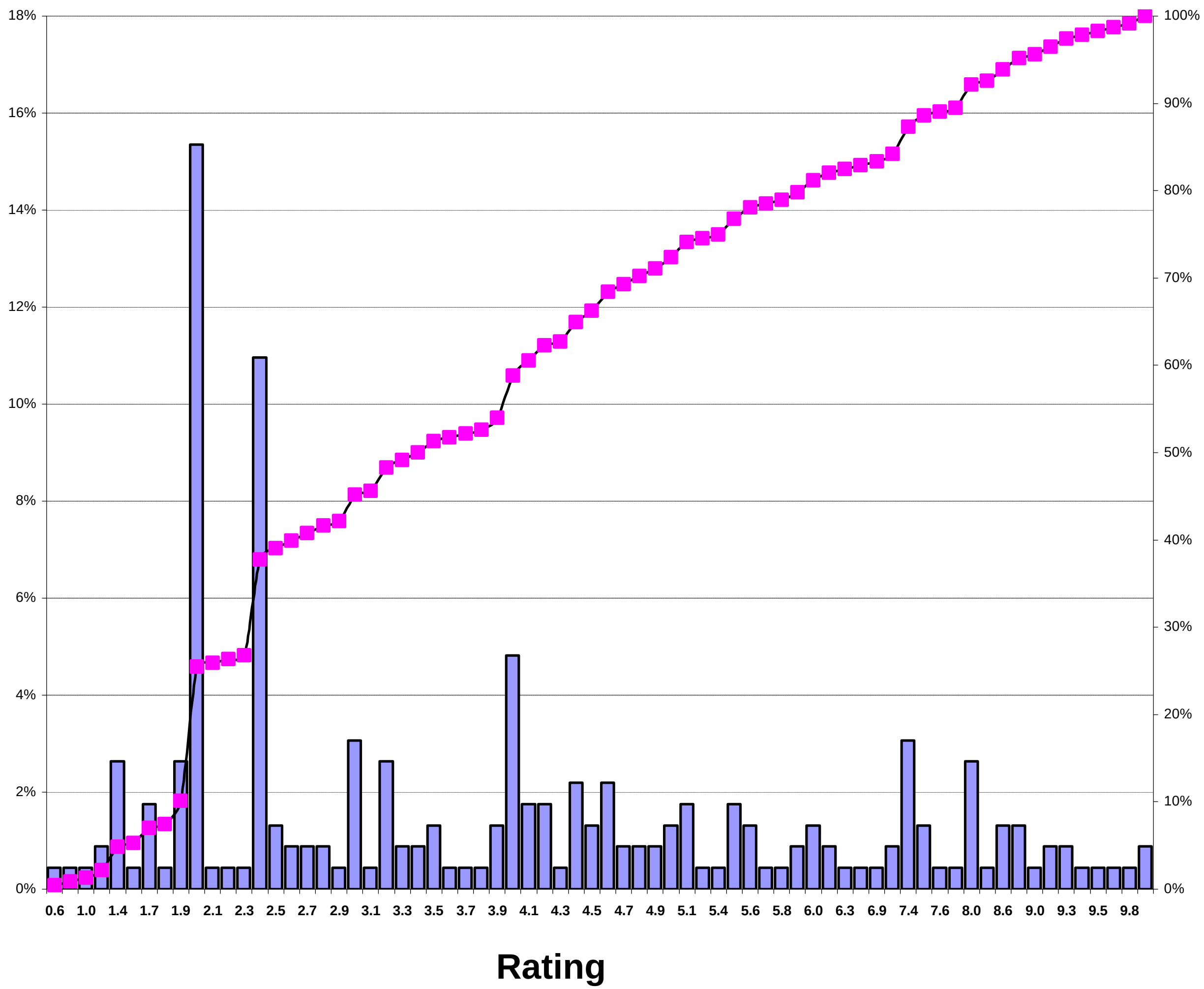
4.8	3	1.3%	67.5%
4.9	2	0.9%	68.4%
5.0	5	2.2%	70.6%
5.1	1	0.4%	71.1%
5.2	3	1.3%	72.4%
5.5	6	2.6%	75.0%
5.6	1	0.4%	75.4%
5.7	1	0.4%	75.9%
5.8	2	0.9%	76.8%
6.1	2	0.9%	77.6%
6.2	2	0.9%	78.5%
6.3	1	0.4%	78.9%
6.4	7	3.1%	82.0%
6.5	4	1.8%	83.8%
6.8	10	4.4%	88.2%
7.0	4	1.8%	89.9%
7.2	1	0.4%	90.4%
7.3	1	0.4%	90.8%
7.4	3	1.3%	92.1%
7.6	3	1.3%	93.4%
7.8	3	1.3%	94.7%
8.0	3	1.3%	96.1%
8.4	1	0.4%	96.5%
8.9	1	0.4%	96.9%
9.0	1	0.4%	97.4%
9.1	1	0.4%	97.8%
9.2	1	0.4%	98.2%
9.4	2	0.9%	99.1%
9.7	1	0.4%	99.6%
9.9	1	0.4%	100.0%
Total	228	100.0%	

Number of missing values = 0

Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Frequency	%age	Cume %age
0.6	1	0.4%	0.4%
0.9	1	0.4%	0.9%
1.0	1	0.4%	1.3%
1.3	2	0.9%	2.2%
1.4	6	2.6%	4.8%
1.6	1	0.4%	5.3%
1.7	4	1.8%	7.0%
1.8	1	0.4%	7.5%
1.9	6	2.6%	10.1%
2.0	35	15.4%	25.4%
2.1	1	0.4%	25.9%
2.2	1	0.4%	26.3%
2.3	1	0.4%	26.8%
2.4	25	11.0%	37.7%
2.5	3	1.3%	39.0%
2.6	2	0.9%	39.9%
2.7	2	0.9%	40.8%
2.8	2	0.9%	41.7%
2.9	1	0.4%	42.1%
3.0	7	3.1%	45.2%
3.1	1	0.4%	45.6%
3.2	6	2.6%	48.2%
3.3	2	0.9%	49.1%
3.4	2	0.9%	50.0%
3.5	3	1.3%	51.3%
3.6	1	0.4%	51.8%
3.7	1	0.4%	52.2%
3.8	1	0.4%	52.6%
3.9	3	1.3%	53.9%
4.0	11	4.8%	58.8%
4.1	4	1.8%	60.5%
4.2	4	1.8%	62.3%



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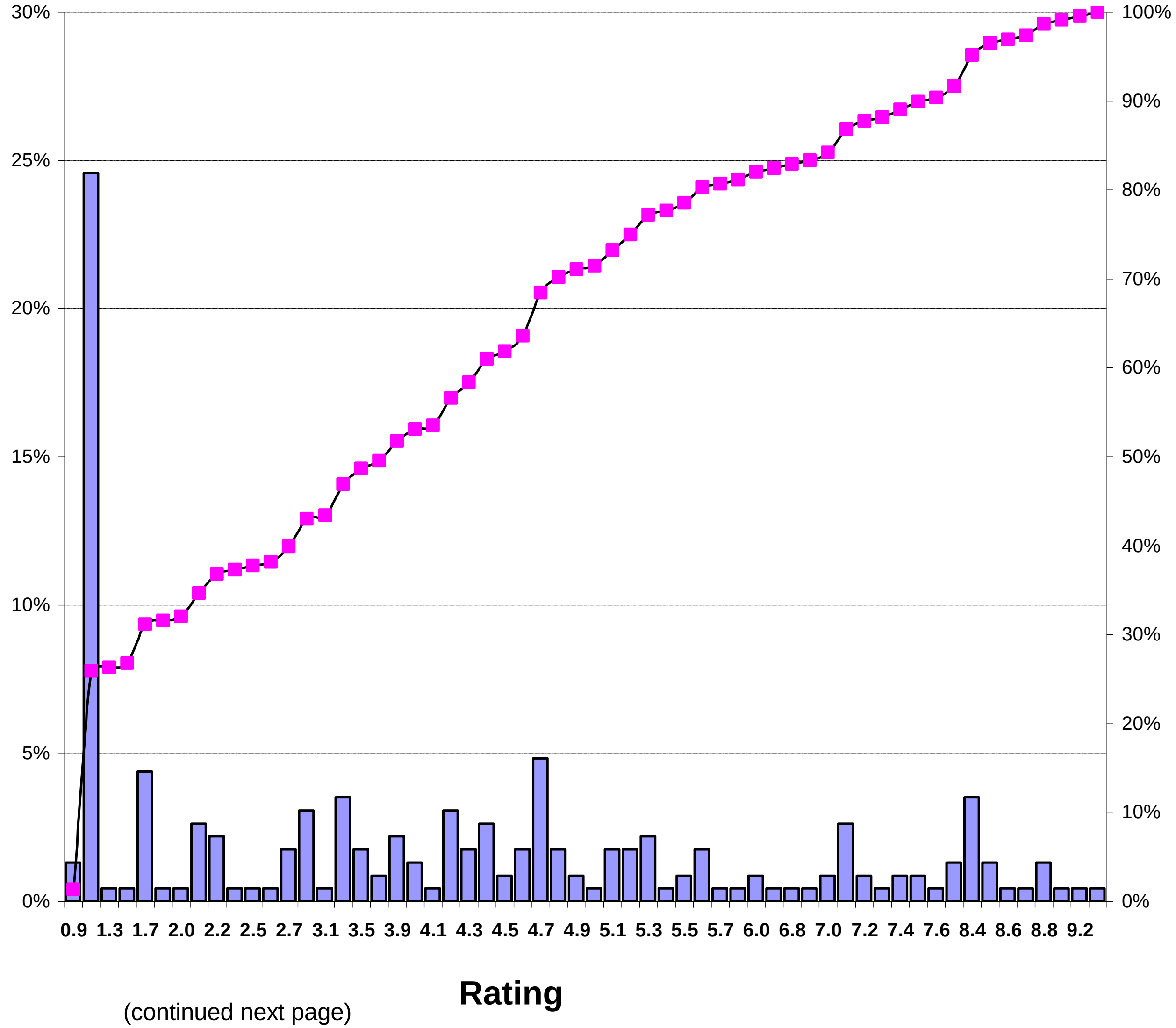
4.3	1	0.4%	62.7%
4.4	5	2.2%	64.9%
4.5	3	1.3%	66.2%
4.6	5	2.2%	68.4%
4.7	2	0.9%	69.3%
4.8	2	0.9%	70.2%
4.9	2	0.9%	71.1%
5.0	3	1.3%	72.4%
5.1	4	1.8%	74.1%
5.2	1	0.4%	74.6%
5.4	1	0.4%	75.0%
5.5	4	1.8%	76.8%
5.6	3	1.3%	78.1%
5.7	1	0.4%	78.5%
5.8	1	0.4%	78.9%
5.9	2	0.9%	79.8%
6.0	3	1.3%	81.1%
6.2	2	0.9%	82.0%
6.3	1	0.4%	82.5%
6.5	1	0.4%	82.9%
6.9	1	0.4%	83.3%
7.3	2	0.9%	84.2%
7.4	7	3.1%	87.3%
7.5	3	1.3%	88.6%
7.6	1	0.4%	89.0%
7.7	1	0.4%	89.5%
8.0	6	2.6%	92.1%
8.1	1	0.4%	92.5%
8.6	3	1.3%	93.9%
8.9	3	1.3%	95.2%
9.0	1	0.4%	95.6%
9.2	2	0.9%	96.5%
9.3	2	0.9%	97.4%
9.4	1	0.4%	97.8%
9.5	1	0.4%	98.2%
9.6	1	0.4%	98.7%
9.8	1	0.4%	99.1%
9.9	2	0.9%	100.0%
Total	228	100.0%	

Number of missing values = 0

Attachment 3 - Continued

Summary Report for Stress

Rating	Frequency	%age	Cume %age
0.9	3	1.3%	1.3%
1.2	56	24.6%	25.9%
1.3	1	0.4%	26.3%
1.5	1	0.4%	26.8%
1.7	10	4.4%	31.1%
1.9	1	0.4%	31.6%
2.0	1	0.4%	32.0%
2.1	6	2.6%	34.6%
2.2	5	2.2%	36.8%
2.3	1	0.4%	37.3%
2.5	1	0.4%	37.7%
2.6	1	0.4%	38.2%
2.7	4	1.8%	39.9%
2.9	7	3.1%	43.0%
3.1	1	0.4%	43.4%
3.4	8	3.5%	46.9%
3.5	4	1.8%	48.7%
3.7	2	0.9%	49.6%
3.9	5	2.2%	51.8%
4.0	3	1.3%	53.1%
4.1	1	0.4%	53.5%
4.2	7	3.1%	56.6%
4.3	4	1.8%	58.3%
4.4	6	2.6%	61.0%
4.5	2	0.9%	61.8%
4.6	4	1.8%	63.6%
4.7	11	4.8%	68.4%
4.8	4	1.8%	70.2%
4.9	2	0.9%	71.1%
5.0	1	0.4%	71.5%
5.1	4	1.8%	73.2%



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5.2	4	1.8%	75.0%
5.3	5	2.2%	77.2%
5.4	1	0.4%	77.6%
5.5	2	0.9%	78.5%
5.6	4	1.8%	80.3%
5.7	1	0.4%	80.7%
5.9	1	0.4%	81.1%
6.0	2	0.9%	82.0%
6.6	1	0.4%	82.5%
6.8	1	0.4%	82.9%
6.9	1	0.4%	83.3%
7.0	2	0.9%	84.2%
7.1	6	2.6%	86.8%
7.2	2	0.9%	87.7%
7.3	1	0.4%	88.2%
7.4	2	0.9%	89.0%
7.5	2	0.9%	89.9%
7.6	1	0.4%	90.4%
7.9	3	1.3%	91.7%
8.4	8	3.5%	95.2%
8.5	3	1.3%	96.5%
8.6	1	0.4%	96.9%
8.7	1	0.4%	97.4%
8.8	3	1.3%	98.7%
9.1	1	0.4%	99.1%
9.2	1	0.4%	99.6%
9.8	1	0.4%	100.0%
Total	228	100.0%	

Number of missing values = 0

Attachment 4 - Links with Other Specialties

The number of link items between Opthalmology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	2	10	12
Oral and Maxillo-facial Surgery	1	15	16
Obstetrics / Gynaecology	0	5	5
General Surgery	0	17	17
Cardio Thoracic Surgery	0	5	5
Neurosurgery	0	18	18
Orthopaedic surgery	0	54	54
Paediatric Surgery	0	14	14
Plastic Surgery	10	0	10
Urology	0	54	54
Vascular Surgery	0	7	7
ENT	0	3	3
Anaesthesia	0	54	54
Dermatology	1	45	46
Paediatric / Thoracic Medicine	0	52	52
General Medicine	1	35	36
Cardiology, Renal, ICU	0	21	21
Radiation, Oncology	3	21	24
Gastroenterology	0	47	47
Neurology	3	54	57
Haematology, Medical Oncology	0	17	17
Psychiatry	0	43	43
Total	19	55	74

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Otolaryngology, Head & Neck Surgery

Summary Status Report

November 4th Report

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Otolaryngology (Head & Neck Surgery) Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 172 items. These comprised 169 procedure items and 3 consultation items.

Analysis of this information showed:

- The median ratio of Otolaryngology's intra time estimates to NCCH's Theatre Times Database observed procedure times was 133.4%. This implies a strong tendency by this group to over estimate intra time.

- There was no significant difference between the ranks given to procedure items and those given to consultation items. The link items were given significantly lower ranks than the non link items ($p < 0.01$).

- The good map items were given significantly higher ranks than the poor/no map items ($p<0.05$).

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 2.6. This is lower than the median observed for specialties so far examined. In terms of deviations in rates of pay, it should be possible to align Otolaryngology's rankings and ratings with those of the other groups.

- The imputed relative values given to procedure items were not significantly different from those given to consultation items.

- Link items were given significantly lower imputed relative values than non-link items when log transformed data were tested ($p < 0.01$). Good map items were given significantly higher imputed relative values than poor/no map items when log transformed data were tested ($p < 0.05$).

- The correlations between the imputed relative values for Otolaryngology and the Medicare Benefits Schedule Fee and CPT RV were reasonable (R^2 = 83% and R^2=76%).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Otolaryngology are set out in Table 2.1 together with associated standard deviations and ranges.

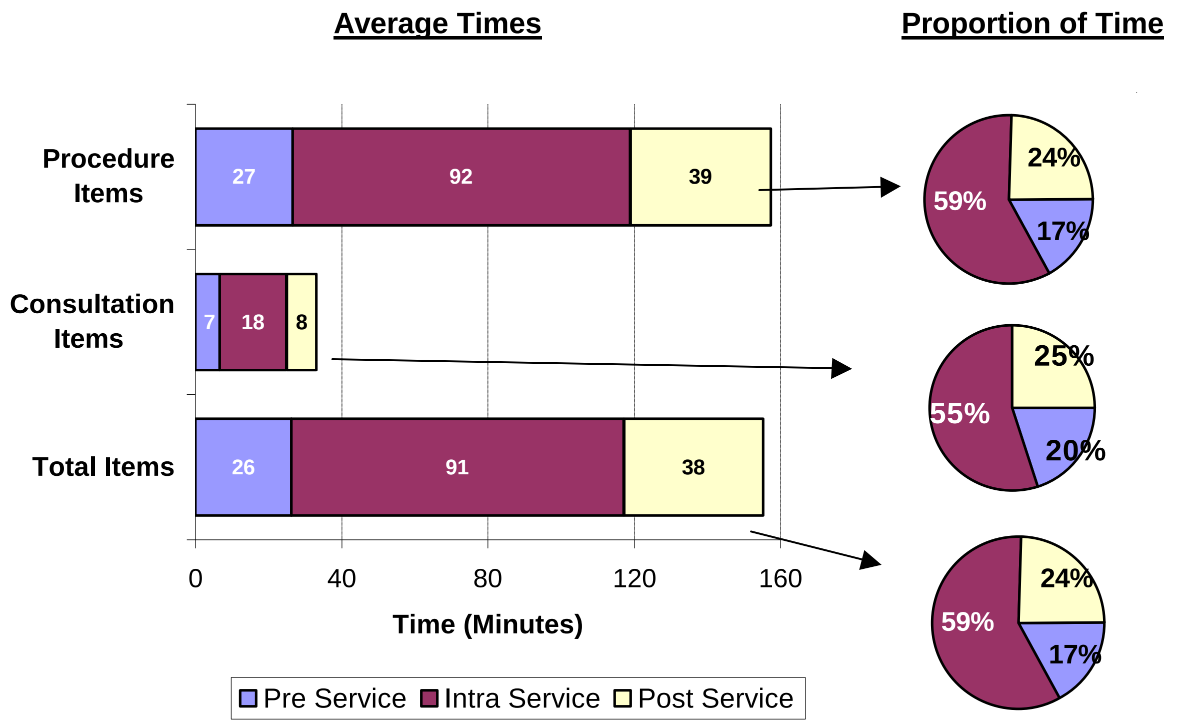
The mean intra service time was 91 minutes and the mean total time was 155 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	26	91	38	155
SD	14	98	29	133
Min	5	5	5	20
Max	60	480	160	610

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Average Times	Pre Service	Intra Service	Post Service	Total Time
	26.6	92.3	38.6	157.5
Consultation Items	6.7	18.3	8.3	33.3
	26.3	91.0	38.1	155.4

Otolaryngology's procedure intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies. The median ratio of Otolaryngology's intra time estimates to the observed procedure times was 133.4%. This implies a strong tendency by this group to over estimate intra times. Details are provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Otolaryngology are set out in Table 3.1 together with associated standard deviations and ranges.

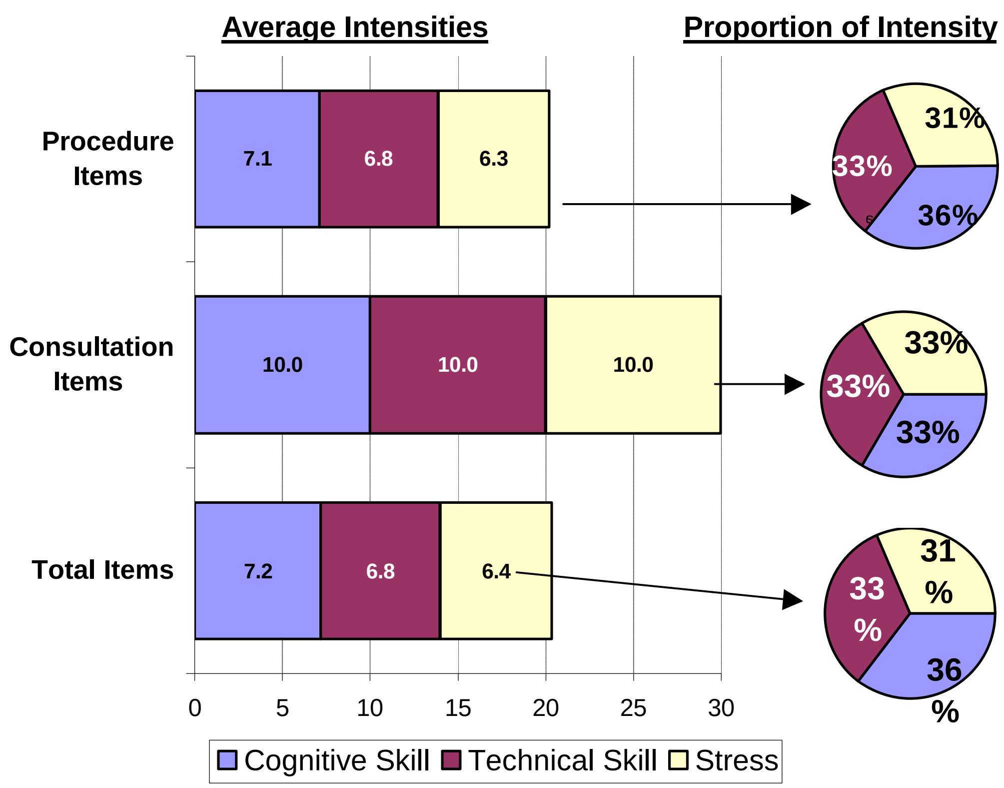
The mean ratings were 7.2 for cognitive skill, 6.8 for technical skill and 6.4 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	7.2	6.8	6.4	20.4
SD	2.5	2.6	3.2	8.2
Min	1.0	1.0	0.0	3.0
Max	10.0	10.0	10.0	30.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	7.1	6.8	6.3	20.2
Consultation Items	10.0	10.0	10.0	30.0
Total Items	7.2	6.8	6.4	20.4

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. There was no significant difference between the ranks given to procedure items and those given to consultation items.

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	169	1	172	85.66
Consultation	3	105.5	159.5	133.67
Total	172	1	172	86.50

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Otolaryngology Consensus Group assessed 44 link items. These comprised all 3 consultation items and 41 of the 169 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were significantly lower than those given to non-link items (sum of ranks test, $p < 0.01$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure-Link	41	5	171	102.02
Consultation-Link	3	105.5	159.5	133.67
Total Link	44	5	171	104.18
Procedure-Non-link	128	1	172	80.42
Total	172	1	172	86.50

Good maps of Otolaryngology's items to CPT were available for 41 of their 172 items. A breakdown of the ranks given to these good map items and to the poor/no-map items is set out in Table 4.3. Good map items were given significantly higher ranks than poor/no-map items (sum of ranks test, p<0.05).

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	41	7	159.5	72.3
Poor/Non Map	131	1	172	90.9
Total	172	1	172	86.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Otolaryngology is 1 to 78.5.

By dividing imputed relative values by time we can impute relative rates of pay.
The variation in relative rates of pay on intra time is 1 to 3 . There is no variation in rates of pay on pre and post times. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 2.6.

These ranges in relative rates of pay are lower than the median observed for specialties examined so far[3]. However, in terms of deviations in rates of pay, it should still be possible to align Otolaryngology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non-link items and between good map items and poor/no-map items in terms of imputed relative value (IRV) are set out in Table 5.1.

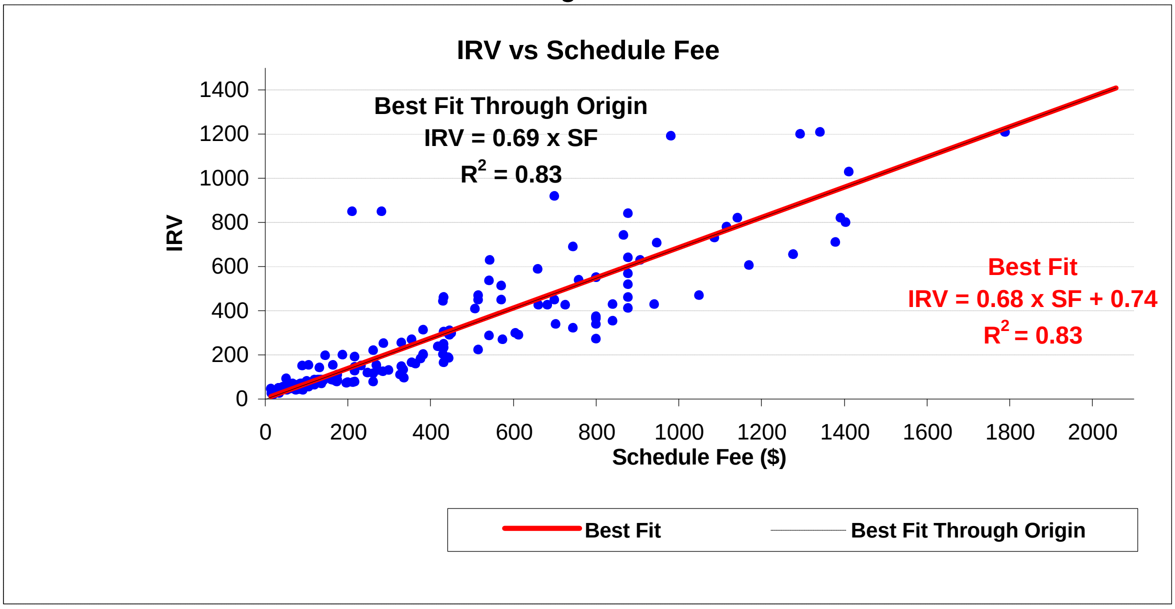
The imputed relative values given to the procedure items were not significantly different from those given to the consultation items. The link items were given significantly lower imputed relative values than the non-link items when log transformed data were tested (t test, p < 0.01). There was no significant difference between the imputed relative values given to good map items and poor/no-map items when absolute values were tested, but when log transformed data was tested, good map items were shown to have significantly higher imputed relative values than poor/no-map items (t test, p < 0.05).

Table 5.1

	Number	**IRVs**		
Type of Item	**Reviewed**	**Mean ± SD**	**Low**	**High**
Procedure	169	313 ± 331	20	1570
Consultation	3	70 ± 36	40	110
Link	44	234 ± 335	25	1210
Non-link	128	334 ± 326	20	1570
Good Map	41	336 ± 264	40	1200
Poor/No Map	131	300 ± 348	20	1570
Total	172	308 ± 330	20	1570

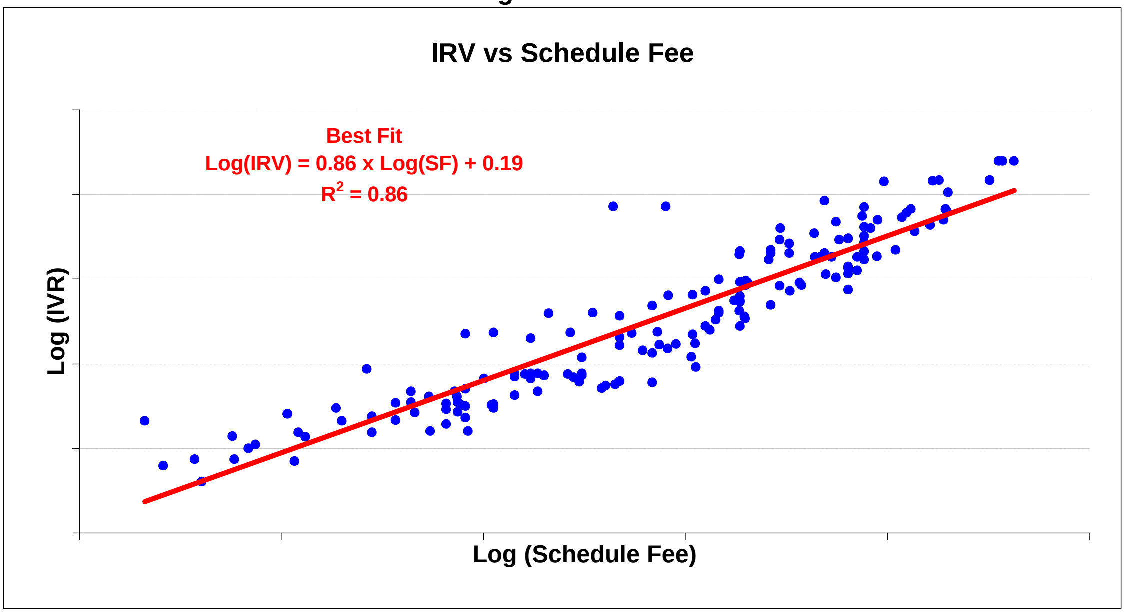
A plot of Otolaryngology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). Two lines of Best Fit are also shown and they both explain 83% of the variation in imputed relative values.

Figure 5.1



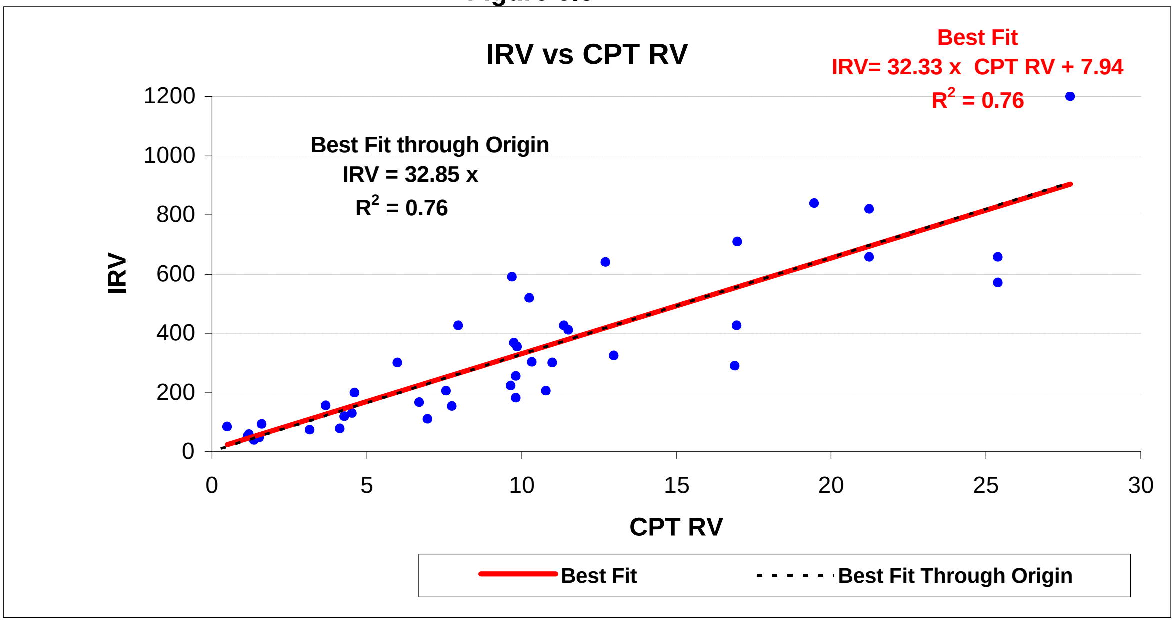
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is only marginally better than that for IRV against Schedule Fee, explaining 86% of the variation as against 83% previously.

Figure 5.2



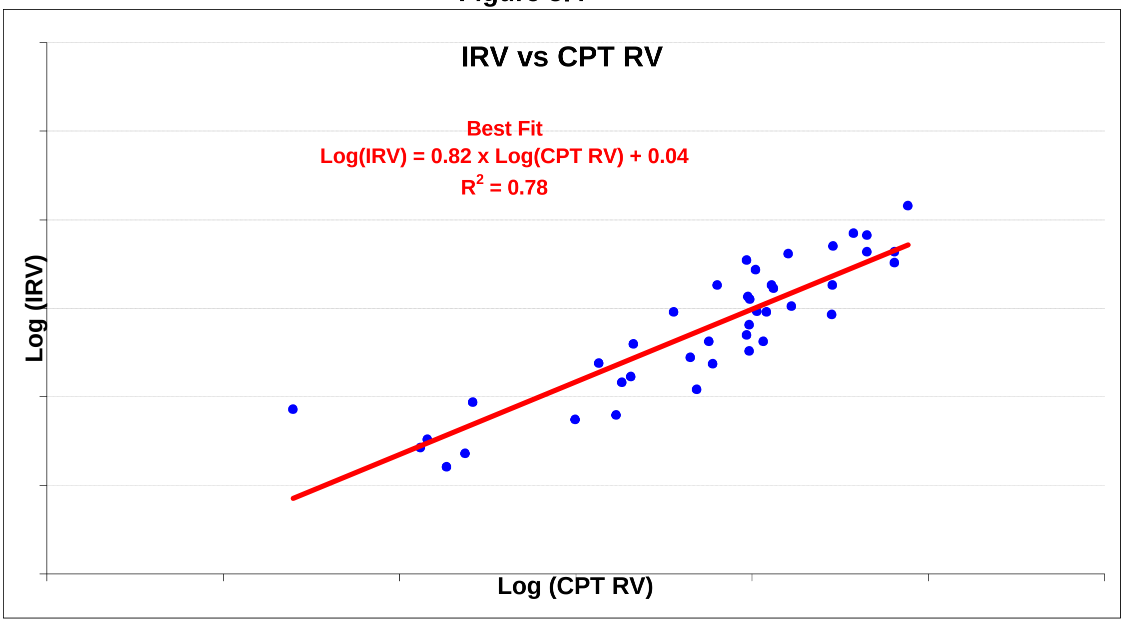
A plot of Otolaryngology's IRVs against CPT RV is set out in Figure 5.3. The fit is reasonable (R^2 = 76%).

Figure 5.3



As for Schedule Fee, we might expect the magnitude of error deviation to increase with CPT RV. Accordingly, a log/log plot is also provided (Figure 5.4). The fit improves from R^2 = 76% to R^2 = 78%.

Figure 5.4



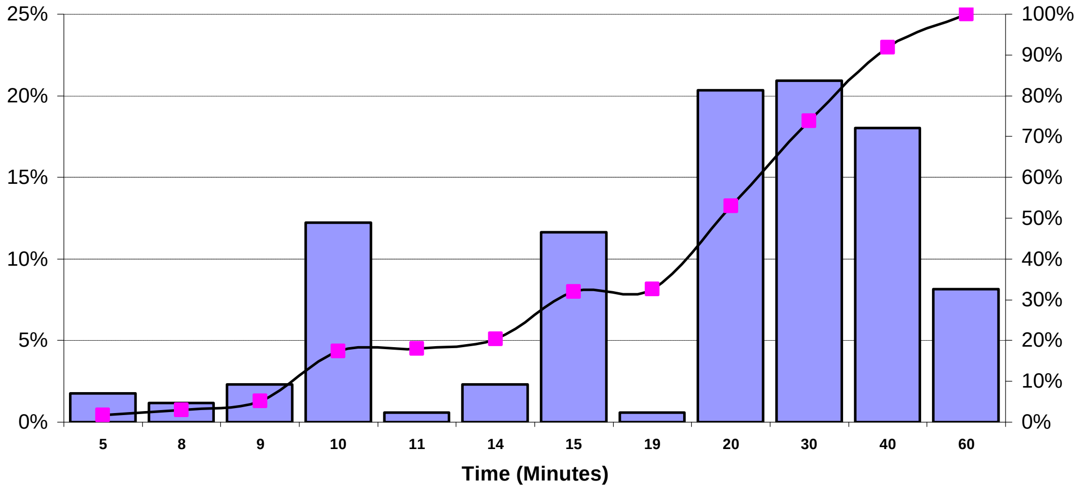
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
5	3	1.7%	1.7%
8	2	1.2%	2.9%
9	4	2.3%	5.2%
10	21	12.2%	17.4%
11	1	0.6%	18.0%
14	4	2.3%	20.3%
15	20	11.6%	32.0%
19	1	0.6%	32.6%
20	35	20.3%	52.9%
30	36	20.9%	73.8%
40	31	18.0%	91.9%
60	14	8.1%	100.0%
Total	172	100.0%	

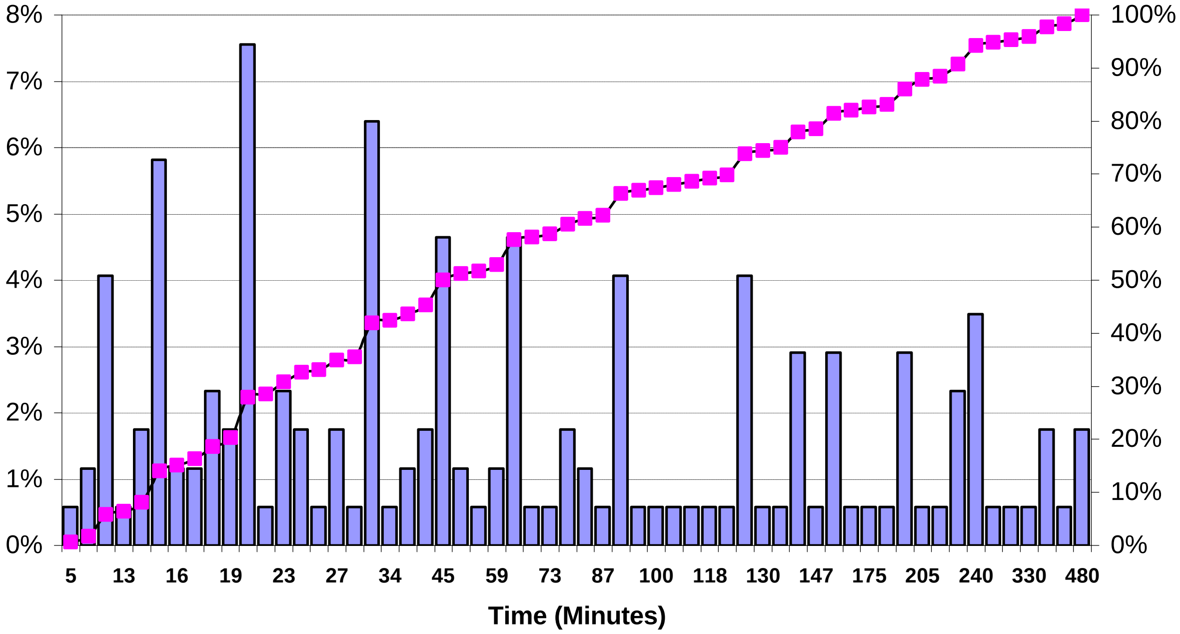
Number of missing values = 0



Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
5	1	0.6%	0.6%
9	2	1.2%	1.7%
10	7	4.1%	5.8%
13	1	0.6%	6.4%
14	3	1.7%	8.1%
15	10	5.8%	14.0%
16	2	1.2%	15.1%
17	2	1.2%	16.3%
18	4	2.3%	18.6%
19	3	1.7%	20.3%
20	13	7.6%	27.9%
21	1	0.6%	28.5%
23	4	2.3%	30.8%
24	3	1.7%	32.6%
25	1	0.6%	33.1%
27	3	1.7%	34.9%
29	1	0.6%	35.5%
30	11	6.4%	41.9%
34	1	0.6%	42.4%
35	2	1.2%	43.6%
40	3	1.7%	45.3%
45	8	4.7%	50.0%
50	2	1.2%	51.2%
57	1	0.6%	51.7%
59	2	1.2%	52.9%
60	8	4.7%	57.6%
70	1	0.6%	58.1%
73	1	0.6%	58.7%
75	3	1.7%	60.5%
80	2	1.2%	61.6%



Continued next page

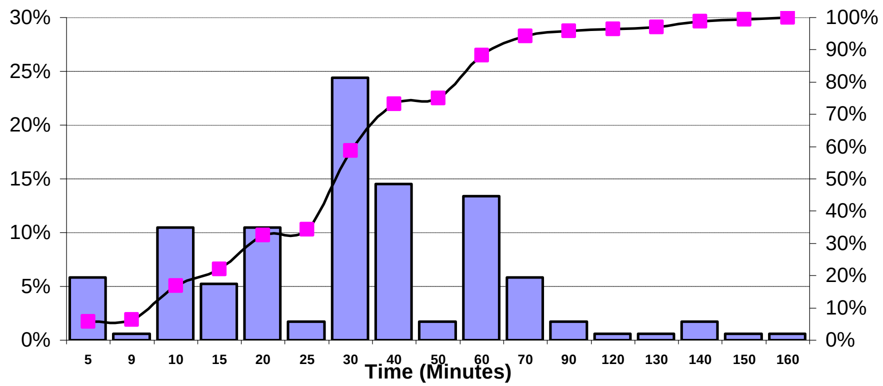
87	1	0.6%	62.2%
90	7	4.1%	66.3%
95	1	0.6%	66.9%
100	1	0.6%	67.4%
102	1	0.6%	68.0%
116	1	0.6%	68.6%
118	1	0.6%	69.2%
119	1	0.6%	69.8%
120	7	4.1%	73.8%
130	1	0.6%	74.4%
140	1	0.6%	75.0%
145	5	2.9%	77.9%
147	1	0.6%	78.5%
150	5	2.9%	81.4%
160	1	0.6%	82.0%
175	1	0.6%	82.6%
178	1	0.6%	83.1%
180	5	2.9%	86.0%
205	1	0.6%	87.8%
207	1	0.6%	88.4%
210	4	2.3%	90.7%
240	6	3.5%	94.2%
250	1	0.6%	94.8%
300	1	0.6%	95.3%
330	1	0.6%	95.9%
360	3	1.7%	97.7%
385	1	0.6%	98.3%
480	3	1.7%	100.0%
Total	172	100.0%	

Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
5	10	5.8%	5.8%
9	1	0.6%	6.4%
10	18	10.5%	16.9%
15	9	5.2%	22.1%
20	18	10.5%	32.6%
25	3	1.7%	34.3%
30	42	24.4%	58.7%
40	25	14.5%	73.3%
50	3	1.7%	75.0%
60	23	13.4%	88.4%
70	10	5.8%	94.2%
90	3	1.7%	95.9%
120	1	0.6%	96.5%
130	1	0.6%	97.1%
140	3	1.7%	98.8%
150	1	0.6%	99.4%
160	1	0.6%	100.0%
Total	172	100.0%	



Number of missing values = 0

COMPARISON OF OTOLARYNGOLOGY HEAD AND NECK SURGERY (OHN)
INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x OHN/OTE
	ID	Type	Definition of Time *		OHN	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	36	48.7	39.4	123.5
	H6	Priv	Knife to Skin -to- Drapes Removed	42	53.7	43.2	124.4
	H11	Priv	Pt Prepped -to- Drapes Remove	35	57.4	56.9	100.8
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	22	65.2	39.5	165.1
	H8	Priv	Pt Positioned -to- Drapes Removed	35	56.1	36.9	152.1
	H10	Priv	Pt Positioned -to- Drapes Removed	1	60.0	75.0	80.0
	H13	Priv	Pt Positioned -to- Drapes Removed	21	86.9	44.6	194.8
	H15	Priv	Pt Positioned -to- Drapes Removed	31	59.2	35.6	166.1
	H16	Pub	Pt Positioned -to- Dressing Applied	75	96.8	78.9	122.7
	H17	Pub	Surgeon with Pt -to- Drapes Removed	47	95.7	99.2	96.5
	H18	Priv	Pt Positioned -to- Drapes Removed	59	58.8	33.0	178.3
	H19	Pub	Pt Positioned -to- Dressing Applied	38	79.1	72.9	108.5
	H20	Pub	Pt Positioned -to- Dressing Applied	51	62.3	46.9	132.7
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	95	83.0	62.2	133.4
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	71	97.4	78.6	123.9
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	34	50.9	36.8	138.4
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	44	53.2	40.1	132.8
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	42	108.9	86.4	126.0
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	6	42.3	26.2	161.8
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	25	77.0	44.4	173.2
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	34	65.0	50.6	128.5
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	78	96.7	85.8	112.8
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	49	101.6	111.9	90.8
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	62	60.5	40.0	151.3
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	65	79.3	71.7	110.6
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	58	59.3	55.5	106.8
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staf	71	97.4	83.9	116.0
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	26	58.2	44.4	131.2
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	36	53.8	68.3	78.8
	H6	Priv	Prep. Anaes. -to- Drapes Removed	46	53.3	55.7	95.6
	H8	Priv	Prep. Anaes. -to- Drapes Removed	42	54.2	45.4	119.4
	H10	Priv	Prep. Anaes. -to- Drapes Removed	1	60.0	80.0	75.0
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	25	77.0	48.0	160.5
	H15	Priv	Induction of Anaes -to- Drapes Removed	35	63.7	53.8	118.5
	H16	Pub	Prep. Anaes. -to- Dressing Applied	78	96.7	93.6	103.3
	H17	Pub	Prep. Anaes. -to- Drapes Removed	50	109.7	140.3	78.2
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	64	59.3	43.7	135.7
	H19	Pub	Prep. Anaes. -to- Dressing Applied	44	72.9	87.1	83.7
	H20	Pub	Prep. Anaes. -to- Dressing Applied	57	61.8	66.7	92.6
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	71	97.4	87.3	111.5
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	34	50.9	44.3	115.0
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	149	96.3	96.4	99.9
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	53	79.3	67.1	118.3
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	31	36.3	30.7	118.0
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	45	52.4	48.3	108.4
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	41	110.4	102.2	108.0
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	6	42.3	36.4	116.3
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	39	54.5	68.8	79.3
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	11	64.1	50.6	126.6
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	93	91.3	108.2	84.4
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	36	72.0	76.2	94.5
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	78	96.7	101.2	95.5
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	50	109.7	148.9	73.7
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	65	79.4	89.3	88.9
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	60	59.7	73.4	81.4
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	71	97.4	92.7	105.1
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	133	93.1	63.8	145.9
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	64	71.8	77.4	92.7
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	19	44.3	48.8	90.8
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	40	55.6	83.8	66.3
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	28	71.9	54.5	131.8
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	35	67.2	94.6	71.0
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	65	59.3	48.1	123.3
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	65	79.4	107.6	73.8
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	52	41.1	29.5	139.2
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	90	55.4	35.6	155.4
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	18	28.9	26.5	109.3

* Definition of Time
- see attachment

**** Median ratio of OHN intra time estimates to OPT**
Unweighted = 133.4 %
Weighted (for number of items in common) = 133.4 %

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTH			PT ENTER OP SUITE	PT ENTERS ANAESTHETIC BAY OR OP ROOM Anaesth. arrives to talk to pt	prepares pt for anaes- cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	*Start OP time* Surg. With pt after anaes induction	Pt is position	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave pt	End OP Time Reversal of anaes	XFER TO RECOV Xfer of Pt to Recov. Staff	XFER FROM RECOV
ID	**Time**	**Type**																
Hosp4	H4OST	Priv									/		/					
Hosp6	H6OST	Priv									/			/				
Hosp11	H11OST	Priv								/				/				
Hosp1	H1OPT	Priv						/						/				
Hosp8	H8OPT	Priv						/	/*					/				
Hosp10	H10OPT	Priv						/	/*				/	/*				
Hosp13	H13OPT	Priv						/						/				
Hosp15	H15OPT	Priv						/	/*					/				
Hosp16	H16OPT	Pub						/	/*				/					
Hosp17	H17OPT	Pub					/							/				
Hosp18	H18OPT	Priv						/						/				
Hosp19	H19OPT	Pub						/					/					
Hosp20	H20OPT	Pub						/					/					
APHA	APHAOPT	Priv					/								/			
CANS	CANSOPT	Pub & Priv					/								/			
Deloitte	DTOPT	Pub & Priv						/	/*	/**				/				
Hosp8	H8OPT2	Priv						/	/*								/	
Hosp9A	H9AOPT2	Priv						/	/*								/	
Hosp9B	H9BOPT2	Priv/Day						/	/*								/	
Hosp13	H13OPT2	Priv						/									/	
Hosp15	H15OPT2	Priv						/	/*	/**							/	
Hosp16	H16OPT2	Pub						/									/	
Hosp17	H17OPT2	Pub					/										/	
Hosp18	H18OPT2	Priv						/									/	
Hosp19	H19OPT2	Pub						/	/*	/**							/	
Hosp20	H20OPT2	Pub						/									/	
CANS	CANSOPT2	Pub & Priv					/										/	
Hosp1	H1OAT	Priv			/									/				
Hosp4	H4OAT	Priv		/									/					
Hosp6	H6OAT	Priv			/									/				
Hosp8	H8OAT	Priv			/									/				
Hosp10	H10OAT	Priv			/								/	/*				
Hosp13	H13OAT	Priv		/										/				
Hosp15	H15OAT	Pub				/								/				
Hosp16	H16OAT	Pub			/								/					
Hosp17	H17OAT	Priv			/									/				
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub			/								/					
Hosp20	H20OAT	Pub & Priv			/								/					
CAnS	CANSOAT	Pub & Priv			/										/			
Deloitte	DTOAT	Pub & Priv				/								/				
MBS	MBSOAT2	Pub & Priv			/												/	
Hosp5	H5OAT2	Priv			/												/	
Hosp7	H7OAT2	Priv/Day			/												/	
Hosp8	H8OAT2	Priv			/												/	
Hosp9A	H9AOAT2	Priv			/												/	
Hosp9B	H9BOAT2	Priv/Day			/												/	
Hosp11	H11OAT2	Priv			/												/	
Hosp12	H12OAT2	Pub			/												/	
Hosp14	H14OAT2	Pub			/												/	
Hosp15	H15OAT2	Priv				/											/	
Hosp16	H16OAT2	Pub			/												/	
Hosp17	H17OAT2	Pub			/												/	
Hosp19	H19OAT2	Pub			/												/	
Hosp20	H20OAT2	Pub			/												/	
CANS	CANSOAT2	Pub & Priv			/												/	
WAGroup	WA1OAT2	Priv				/											/	
Hosp2	H2THT	Priv		/													/	
Hosp3	H3THT	Pub		/													/	
Hosp11	H11THT	Pub		/														/
Hosp13	H13THT	Priv		/													/	
Hosp15	H15THT	Priv		/													/	
Hosp18	H18THT	Priv		/													/	
Hosp19	H19THT	Day & Othe	/														/	
C'mix -Pub	CMXPUTHT	Priv		/													/	
C'mix -Pte	CMXPVTHT	Priv		/													/	
C'mix-oth	CMXOTTHT	Priv		/													/	

*/** Hospitals where start times > 1 pathway time option

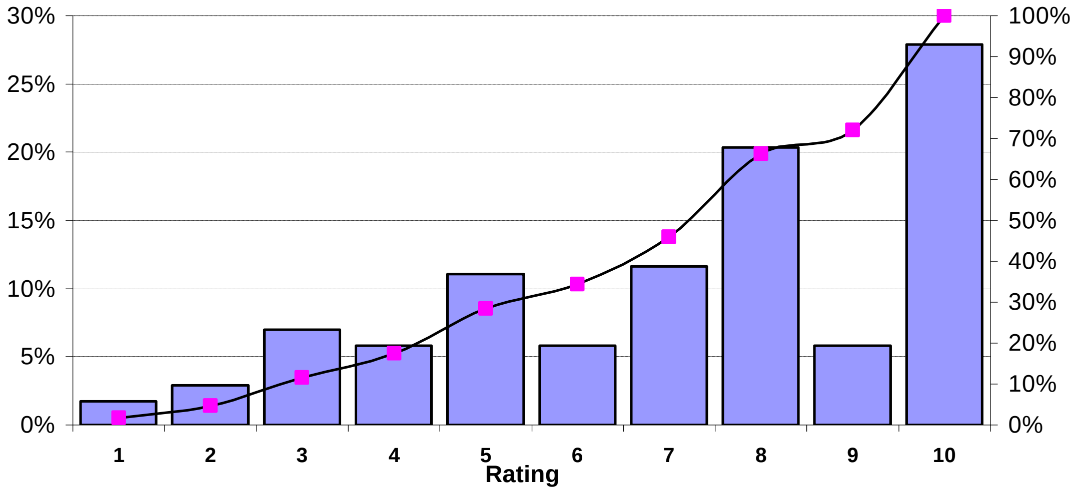
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
1	3	1.7%	1.7%
2	5	2.9%	4.7%
3	12	7.0%	11.6%
4	10	5.8%	17.4%
5	19	11.0%	28.5%
6	10	5.8%	34.3%
7	20	11.6%	45.9%
8	35	20.3%	66.3%
9	10	5.8%	72.1%
10	48	27.9%	100.0%
Total	172	100.0%	

Number of missing values = 0

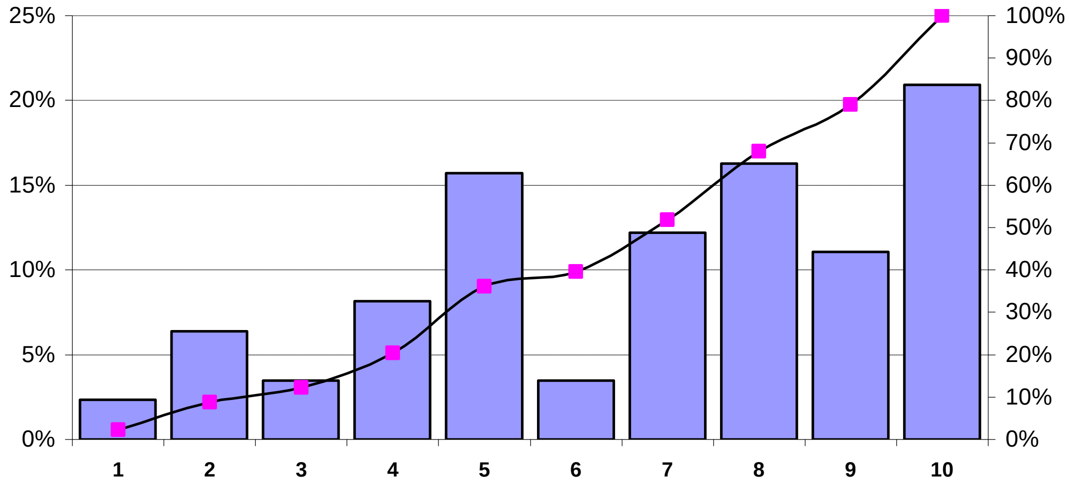


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
1	4	2.3%	2.3%
2	11	6.4%	8.7%
3	6	3.5%	12.2%
4	14	8.1%	20.3%
5	27	15.7%	36.0%
6	6	3.5%	39.5%
7	21	12.2%	51.7%
8	28	16.3%	68.0%
9	19	11.0%	79.1%
10	36	20.9%	100.0%
Total	172	100.0%	

Number of missing values = 0

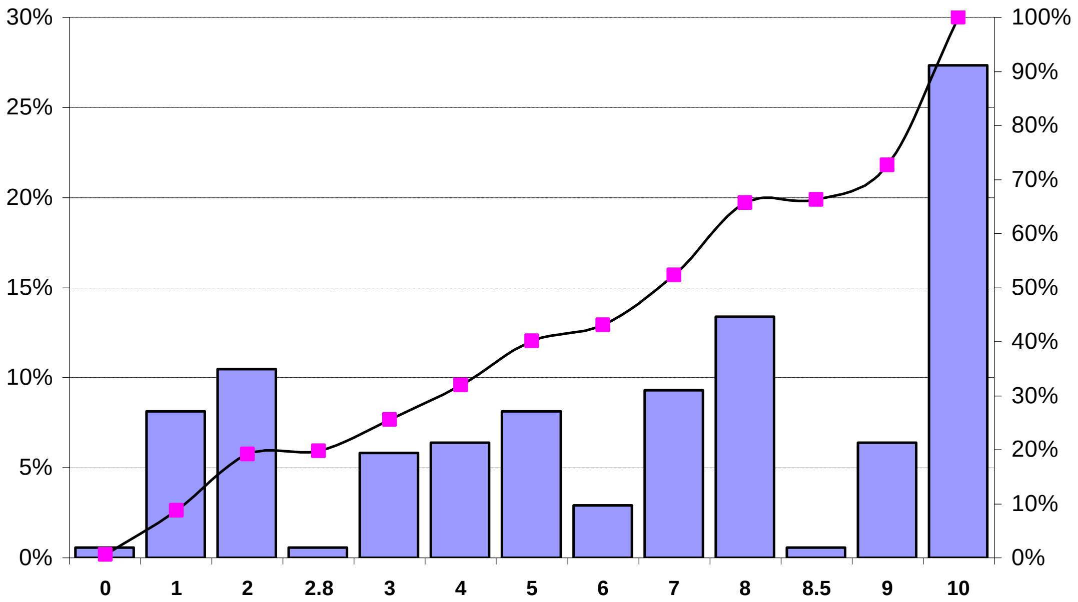


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
0	1	0.6%	0.6%
1	14	8.1%	8.7%
2	18	10.5%	19.2%
2.8	1	0.6%	19.8%
3	10	5.8%	25.6%
4	11	6.4%	32.0%
5	14	8.1%	40.1%
6	5	2.9%	43.0%
7	16	9.3%	52.3%
8	23	13.4%	65.7%
8.5	1	0.6%	66.3%
9	11	6.4%	72.7%
10	47	27.3%	100.0%
Total	172	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Otolargngology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	10	0	10
Oral and Maxillo-Facial Surgery	11	2	13
Obstetrics / Gynaecology	0	0	0
General Surgery	4	3	7
Cardio Thoracic Surgery	1	0	1
Neurosurgery	4	3	7
Orthopaedic Surgery	0	3	3
Paediatric Surgery	2	2	4
Plastic Surgery	11	0	11
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	0	0	0
Anaesthesia	0	3	3
Dermatology	0	3	3
Paediatric / Thoracic Medicine	2	3	5
Paediatric / Thoracic Medicine	2	2	4
Cardiology, Renal, ICU	2	0	2
Radiation, Oncology	0	3	3
Gastroenterology	0	3	3
Neurology	4	3	7
Haematology, Medical Oncology	0	0	0
Psychiatry	0	3	3
Total	41	3	44

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Anaesthesiology

Summary Status Report

December 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Anaesthesiology Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 376 items. These comprised 65 consultation items,108 procedure items and 203 proxy anaesthetic items[1].

Analysis of this information showed:

- The median ratio of Anaesthesiology's procedure item intra time estimates to the observed theatre procedure times was 122.8%. This implies a tendency by the group to over estimate their intra times for the procedure items.

- The median ratio of Anaesthesiology's proxy anaesthetic item intra time estimates to the observed theatre anaesthetic times was 101.5%.

- The Group gave far higher ranks to proxy items than to procedure items and very much higher ranks to procedure items than to consultation items ($p < 0.001$).

- The ranks given to link items were very much lower than those given to non-link items ($p < 0.001$).

- The ranks given to good map items were very much lower than those given to poor / no map items ($p < 0.001$).

- The maximum range in relative rates of pay[2] implied by the Group's rankings was 5.4. This is higher than the median observed for specialties so far examined.

- Given this comparatively large range in relative rates of pay and the comparatively low ranking of the link items, it could be difficult to align Anaesthesiology's rankings and ratings with those of the other groups.

- The imputed relative values (IRVs)[2] given to proxy items were very much greater than those given to procedure items and the IRVs given to procedure items were significantly greater than those given to consultation items ($p < 0.001$).

- The link items were given very much lower imputed relative values than the non link items.

- The good map items were given very much lower imputed relative values than the poor / no map items.

- The correlation between the imputed relative values for Anaesthesiology and the Medicare Benefits Schedule Fee was reasonable (R^2 = 84%).

- The correlation between the imputed relative values for Anaesthesiology and CPT RV was extremely poor (R^2 = 7%).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1]Proxy anaesthetic items have been devised in the Professional Relativities Study to enable the relative values for anaesthetic MBS items 17701 to 17799 to be evaluated in terms of time and intensity on the same basis as consultation and procedure items. It is not possible to do this for items 17701 to 17799 directly as they do not relate to single procedures. Instead the anaesthesiology group and, to a lesser extent, the GP/ Emergency Medicine Group have been asked to estimate times and intensities and rank the provision of anaesthetic services for a carefully chosen set of procedures. These proxy anaesthetic items are designed to give a good coverage of the working range of items 17701 to 17799 spread across specialties with varying ratios of time to intensity.

[2]The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Anaesthesiology are set ou in Table 2.1 together with associated standard deviations and ranges.

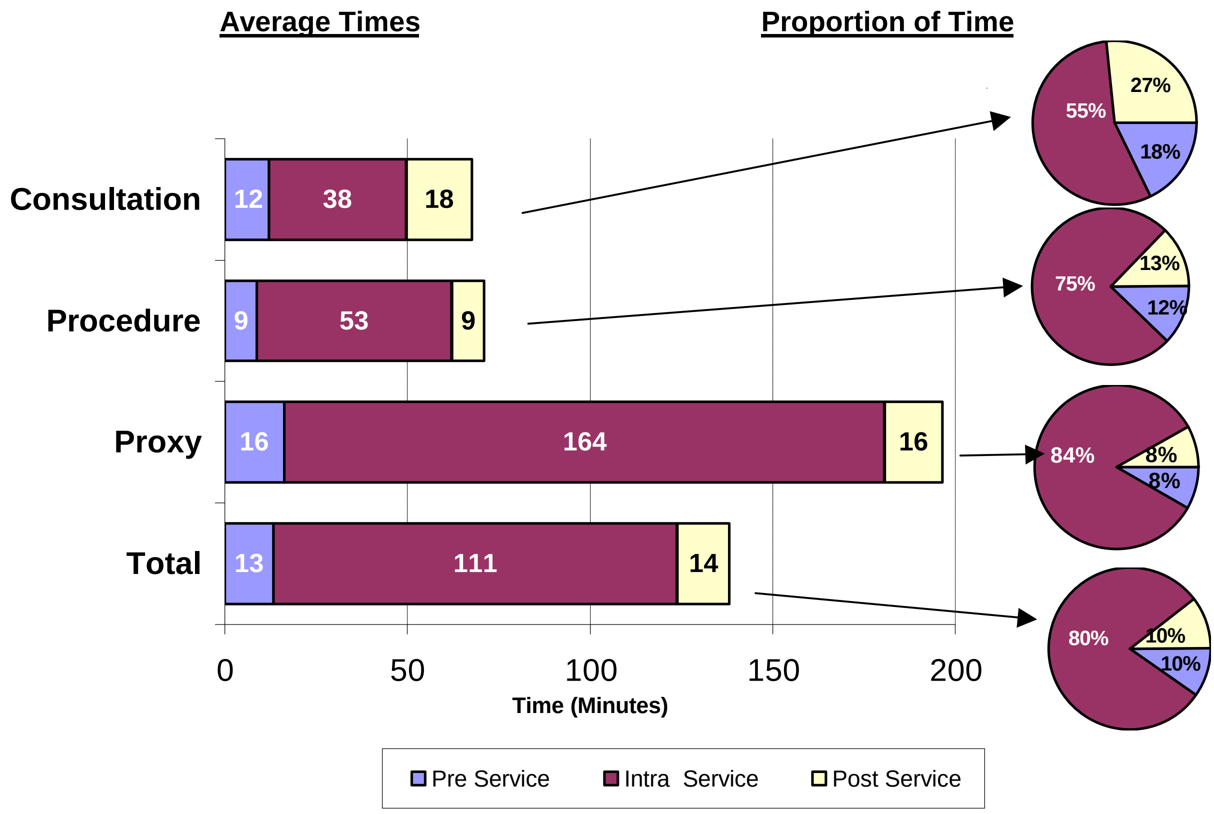
The mean intra service time was 111 minutes and the mean total time was 138 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	13	111	14	138
SD	8	136	8	148
Min	0	5	0	5
Max	35	630	30	685

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for consultation items, procedure items, proxy items and total items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Consultation Items	12.1	37.7	18.0	67.8
Procedure Items	8.7	53.5	8.9	71.1
Proxy items	16.3	164.4	16.0	196.7
Total Items	13.4	110.6	14.3	138.3

Anaesthesiology's procedure intra time estimates and Anaesthesiology's proxy intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies. The median ratio of Anaesthesiology's procedure item intra time estimates to the observed procedure times was 122.8%. This implies a tendency by the group to over estimate their intra time estimates for the procedure items. The median ratio of Anaesthesiology's proxy item intra time estimates to the observed anaesthetic times was 101.5%. Details are provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[3], technical skill[3], stress[3] and total intensity for Anaesthesiology are set out in Table 3.1 together with associated standard deviations and ranges.

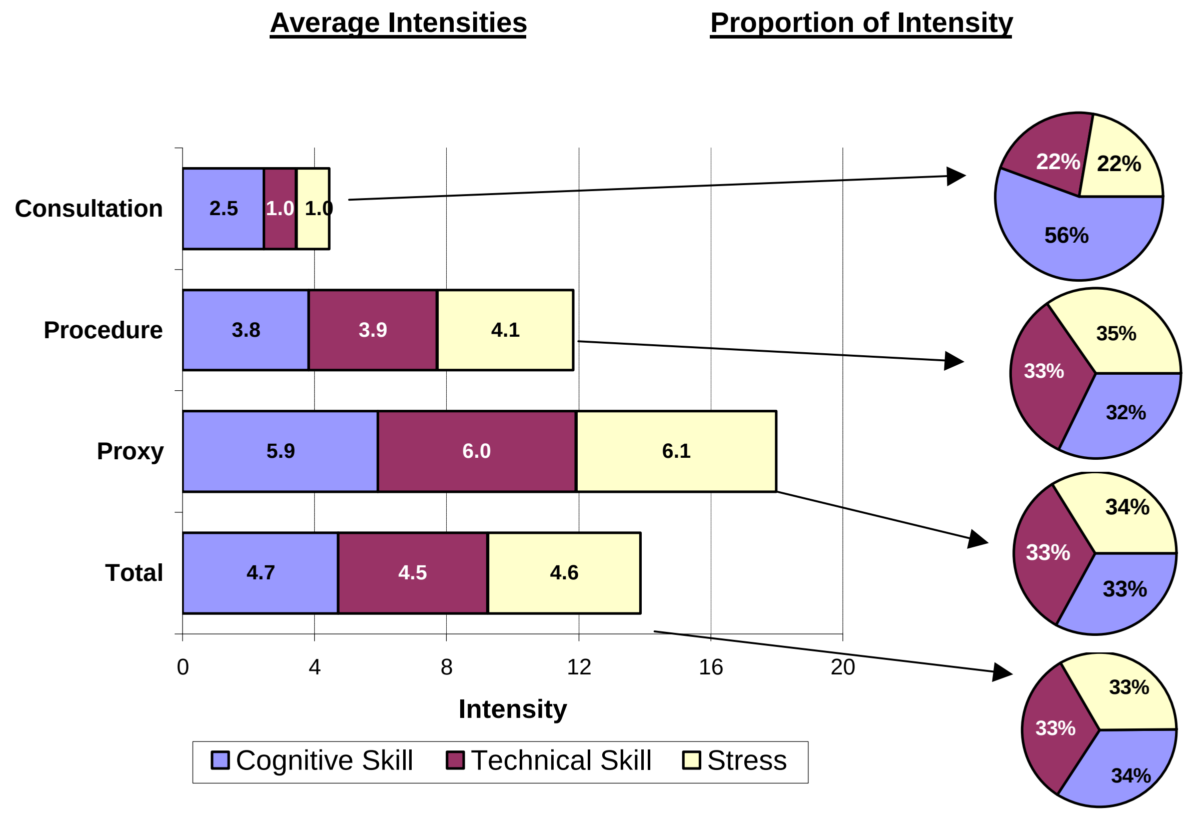
The mean ratings were 4.7 for cognitive skill, 4.5 for technical skill and 4.6 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	4.7	4.5	4.6	13.8
SD	2.3	2.6	2.8	7.8
Min	1.0	1.0	1.0	3.0
Max	10.0	10.0	10.0	30.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for consultation items, procedure items, proxy items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Consultation Items	2.5	1.0	1.0	4.5
Procedure Items	3.8	3.9	4.1	11.8
Proxy items	5.9	6.0	6.1	18.0
Total Items	4.7	4.5	4.6	13.8

[3] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to consultation, procedure and proxy items is set out in Table 4.1. There is a vast difference in the ranks given to the three types of item. The proxy items were given far higher ranks than the procedure items and the procedure items were given very much higher ranks than the consultation items (sum of ranks test, $p < 0.001$). The top 56 ranked items are all proxy aneasthetic items.

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	65	182	373	288.96
Procedure	108	57	376	232.53
Proxy	203	1	317	132.91
Total	376	1	376	188.50

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Anaesthesiology Consensus Group assessed 120 link items. These comprised all of their 65 consultation items, 35 of the 108 procedure items and 20 of the 203 proxy items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were very much lower than those given to non-link items (sum of ranks test, $p < 0.001$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation-Link	65	182	373	288.96
Procedure-Link	35	95.5	376	267.74
Proxy-Link	20	74	292.5	200.35
Total Link	120	74	376	268.00
Procedure-Non-link	73	57	374	215.65
Proxy-Non-Link	183	1	317	125.54
Total Non-Link	256	1	374	151.23
Total	376	1	376	188.50

Good maps of Anaesthesia's items to CPT were available for 20 of their 376 items. A breakdown of the ranks given to these good map items and to the poor/no-map items is set out in Table 4.3. The ranks given to the good map items were very much lower than those given to the poor / no map items (sum of ranks test, $p < 0.001$).

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	20	140	354.5	275.6
Poor/No Map	356	1	376	183.6
Total	376	1	376	188.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Anaesthesiology is 1 to 526.

By dividing imputed relative values by time we can impute <u>relative</u> rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 4.0. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 5.4.

These ranges in relative rates of pay are higher than the median observed for specialties examined so far[4]. In terms of deviations in rates of pay, it should be possible to align Anaesthesiology's rankings and ratings with those of the other groups; but there could still be some difficulty with alignment because the link items are ranked so low.

[4] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5

Comparisons between consultation items, procedure items and proxy items, between link items and non-link items and between good map items and poor/no-map items in terms of imputed relative value (IRV) are set out in Table 5.1.

The IRVs given to the proxy items were very much greater than those given to the procedure items and the IRVs given to the procedure items were significantly greater than those given to the consultation items (ANOVA, $p < 0.001$). The link items were given very much lower imputed relative values than the non link items (t tests, $p < 0.001$). The good map items were given very much lower imputed relative values than the poor / no map items (t tests, $p < 0.001$).

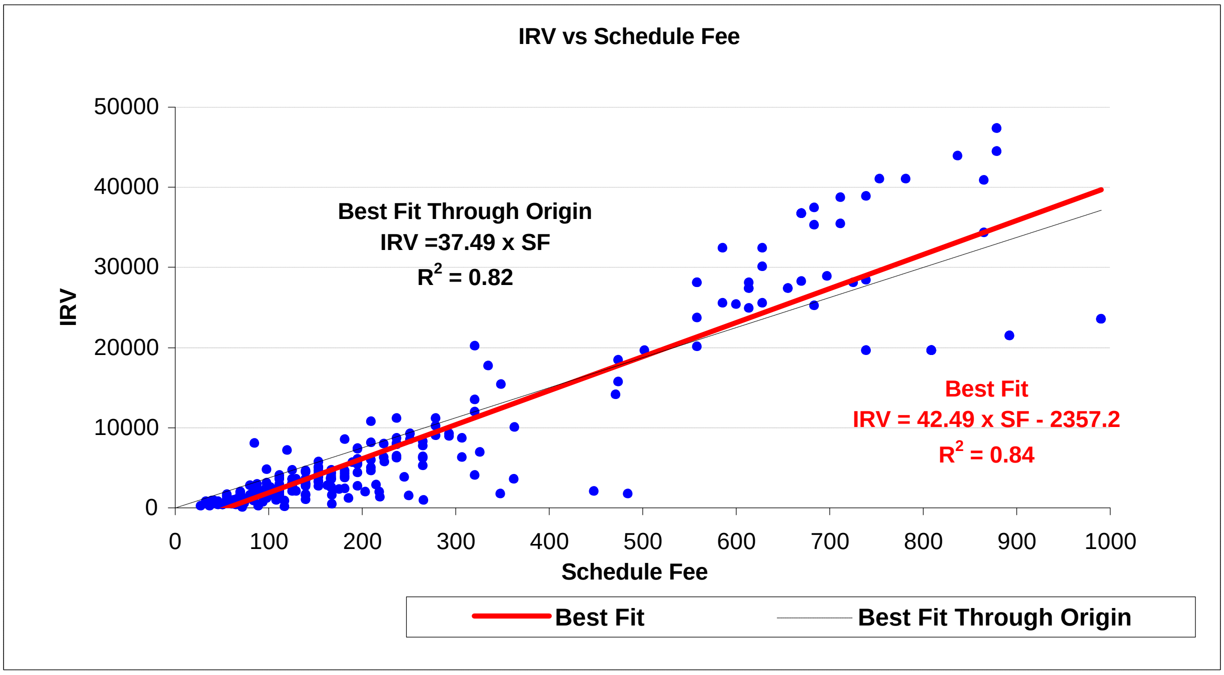
Table 5.1

Type of Item	Number Reviewed	IRVs Mean ± SD		
		Mean ± SD	**Low**	**High**
Consultation	65	1128 ± 648	230	2200
Procedure	108	2506 ± 2741	90	15450
Proxy	203	10675 ± 12461	855	47340
Link	120	1514 ± 1283	90	8295
Non-link	256	9099 ± 11619	216	47340
Good Map	20	1322 ± 828	420	3565
Poor/No Map	356	6979 ± 10441	90	47340
Total	376	6678 ± 10240	90	47340

A plot of Anaesthesiology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is reasonable ($R^2 = 0.84$)[5]. However, there are a number of outliers which should be investigated. These comprise MBS item numbers 39128, 39130, 39653, 39654, 45752, 45754, 52375 and 52382.

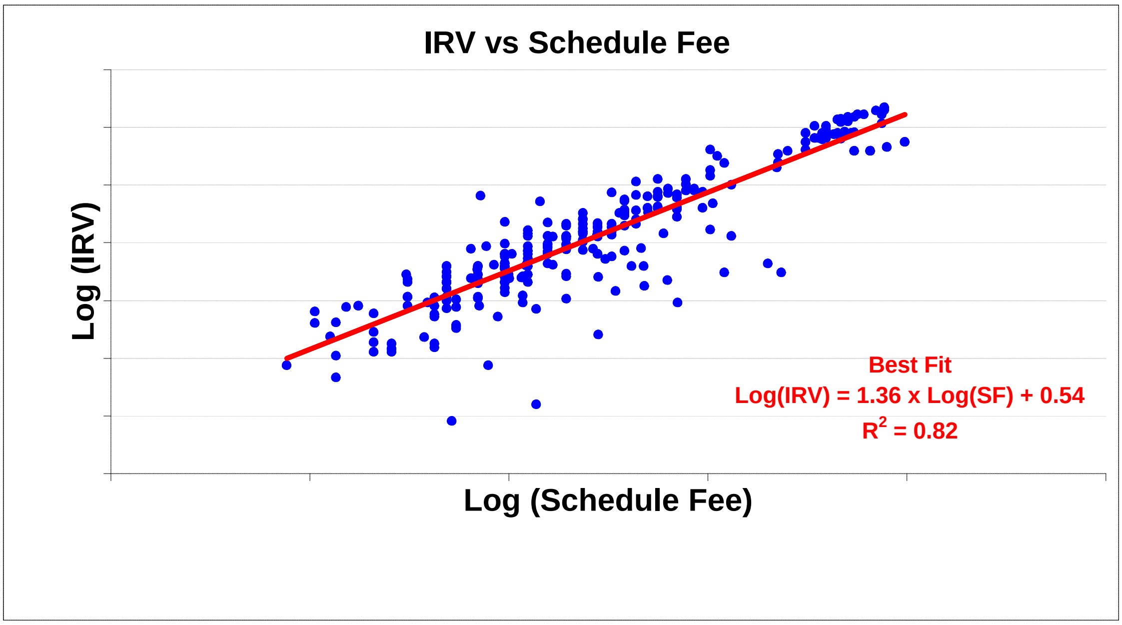
[5] An R^2 value of 0.84 means that the line explains 84% of the variation.

Figure 5.1



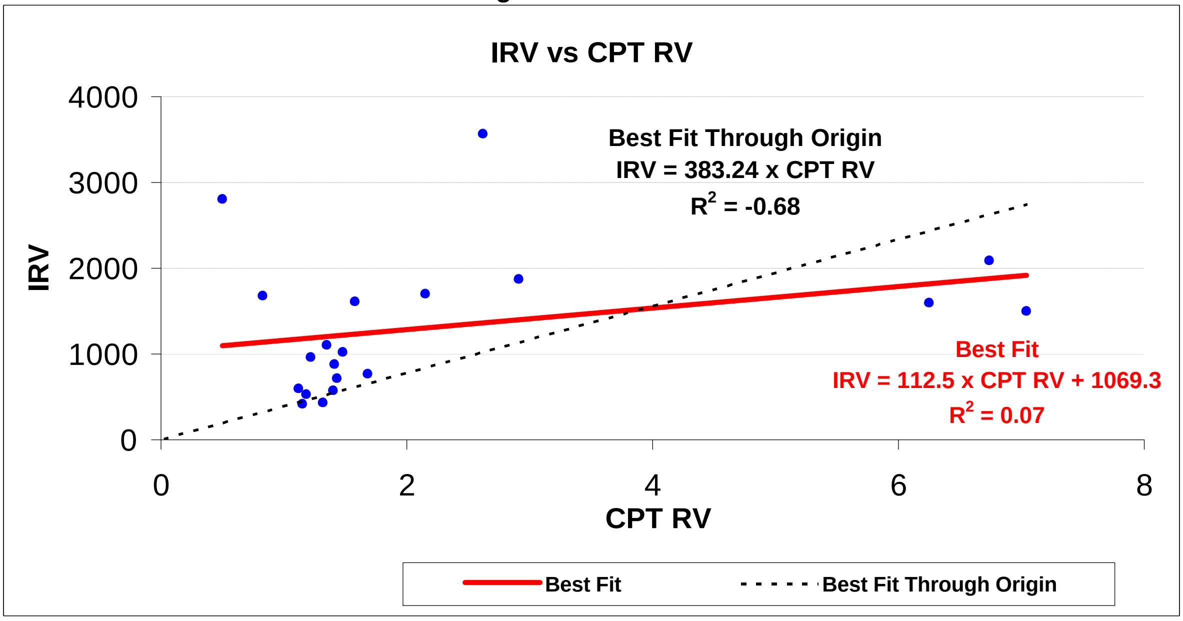
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is explains 82% of the variation as against 84% previously. There are again a number of outliers which should be investigated. These are MBS item numbers 13025, 13939 and 39136 in addition to 39130, which was mentioned previously.

Figure 5.2



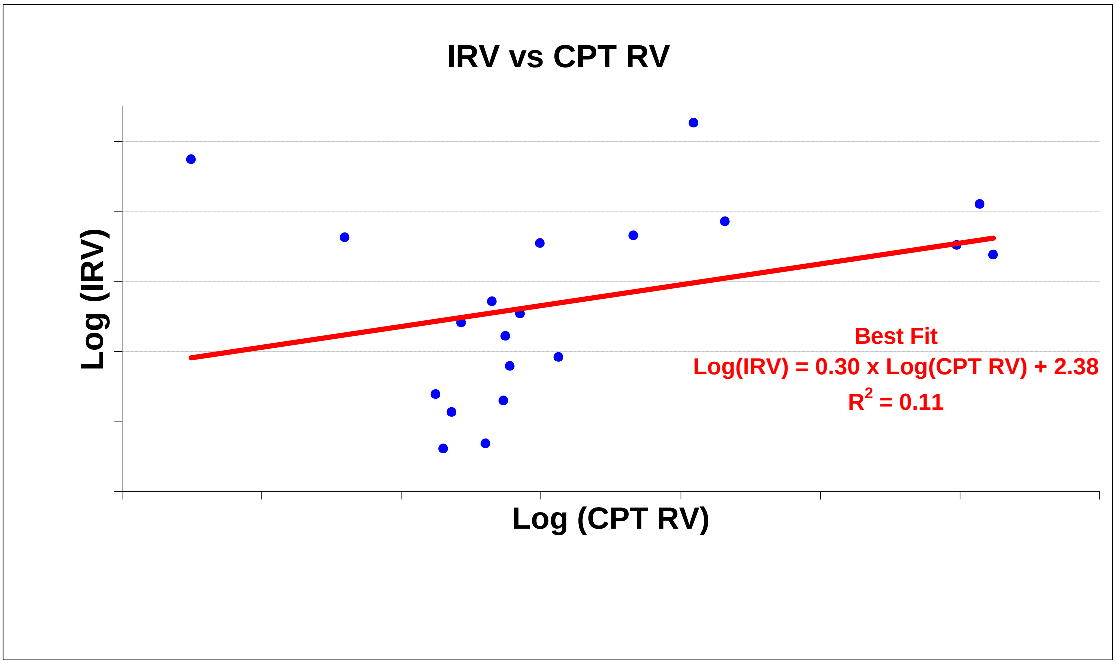
A plot of Anaesthesiay's IRVs against CPT RV is set out in Figure 5.3. The fit is very poor (R^2 = 0.07).

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit is still poor explaining 11% of the variation as against 7% previously.

Figure 5.4

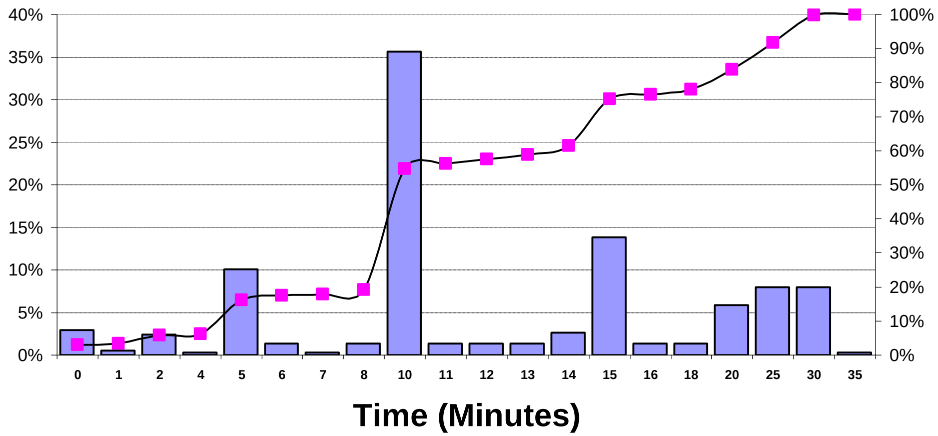


Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre Service Time

Time	Freq	Percentage	Cum. Percentage
0	11	2.9%	2.9%
1	2	0.5%	3.5%
2	9	2.4%	5.9%
4	1	0.3%	6.1%
5	38	10.1%	16.2%
6	5	1.3%	17.6%
7	1	0.3%	17.8%
8	5	1.3%	19.1%
10	134	35.6%	54.8%
11	5	1.3%	56.1%
12	5	1.3%	57.4%
13	5	1.3%	58.8%
14	10	2.7%	61.4%
15	52	13.8%	75.3%
16	5	1.3%	76.6%
18	5	1.3%	77.9%
20	22	5.9%	83.8%
25	30	8.0%	91.8%
30	30	8.0%	99.7%
35	1	0.3%	100.0%
Total	376	100.0%	

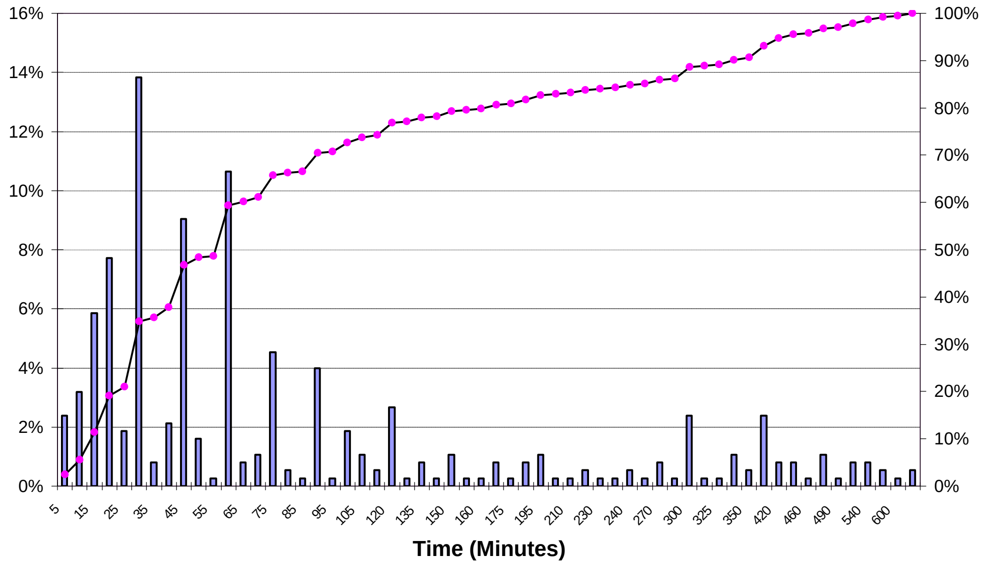


Number of missing values = 0

Attachment 1 - Continued

Summary Report for Intraservice Time

Time	Freq	Percentage	Cum. Percentage
5	9	2.4%	2.4%
10	12	3.2%	5.6%
15	22	5.9%	11.4%
20	29	7.7%	19.1%
25	7	1.9%	21.0%
30	52	13.8%	34.8%
35	3	0.8%	35.6%
40	8	2.1%	37.8%
45	34	9.0%	46.8%
50	6	1.6%	48.4%
55	1	0.3%	48.7%
60	40	10.6%	59.3%
65	3	0.8%	60.1%
70	4	1.1%	61.2%
75	17	4.5%	65.7%
80	2	0.5%	66.2%
85	1	0.3%	66.5%
90	15	4.0%	70.5%
95	1	0.3%	70.7%
100	7	1.9%	72.6%
105	4	1.1%	73.7%
110	2	0.5%	74.2%
120	10	2.7%	76.9%
130	1	0.3%	77.1%
135	3	0.8%	77.9%
140	1	0.3%	78.2%
150	4	1.1%	79.3%
155	1	0.3%	79.5%
160	1	0.3%	79.8%
165	3	0.8%	80.6%
175	1	0.3%	80.9%
180	3	0.8%	81.6%
195	4	1.1%	82.7%
200	1	0.3%	83.0%
210	1	0.3%	83.2%
225	2	0.5%	83.8%



Continued next page

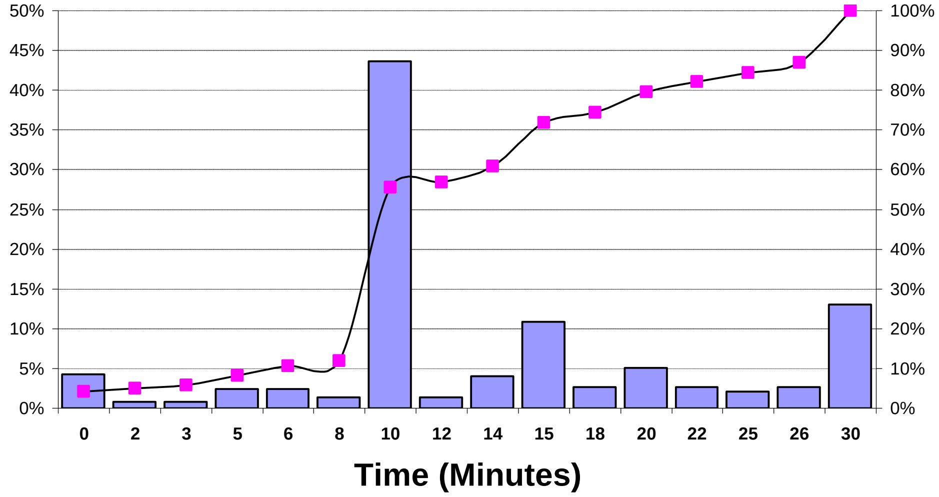
230	1	0.3%	84.0%
235	1	0.3%	84.3%
240	2	0.5%	84.8%
250	1	0.3%	85.1%
270	3	0.8%	85.9%
285	1	0.3%	86.2%
300	9	2.4%	88.6%
320	1	0.3%	88.8%
325	1	0.3%	89.1%
330	4	1.1%	90.2%
350	2	0.5%	90.7%
360	9	2.4%	93.1%
420	3	0.8%	94.7%
450	3	0.8%	95.5%
460	1	0.3%	95.7%
480	4	1.1%	96.8%
490	1	0.3%	97.1%
510	3	0.8%	97.9%
540	3	0.8%	98.7%
590	2	0.5%	99.2%
600	1	0.3%	99.5%
630	2	0.5%	100.0%
Total	376	100.0%	

Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post Service Time

Time	Freq	Percentage	Cum. Percentage
0	16	4.3%	4.3%
2	3	0.8%	5.1%
3	3	0.8%	5.9%
5	9	2.4%	8.2%
6	9	2.4%	10.6%
8	5	1.3%	12.0%
10	164	43.6%	55.6%
12	5	1.3%	56.9%
14	15	4.0%	60.9%
15	41	10.9%	71.8%
18	10	2.7%	74.5%
20	19	5.1%	79.5%
22	10	2.7%	82.2%
25	8	2.1%	84.3%
26	10	2.7%	87.0%
30	49	13.0%	100.0%
Total	376	100.0%	



Number of missing values = 0

Attachment 2

COMPARISON OF ANAESTHESIOLOGY AND HYPERBARIC MEDICINE - NON-PROXY ITEMS (ANAEN) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x ANAEN /OTE
	ID	Type	Definition of Time *		ANAEN	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	5	51.0	41.1	124.0
	H6	Priv	Knife to Skin -to- Drapes Removed	0			
	H11	Priv	Pt Prepped -to- Drapes Remove	4	32.5	30.3	107.4
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	3	23.3	22.5	103.6
	H8	Priv	Pt Positioned -to- Drapes Removed	16	30.9	24.7	125.5
	H10	Priv	Pt Positioned -to- Drapes Removed	2	45.0	37.8	119.2
	H13	Priv	Pt Positioned -to- Drapes Removed	10	32.5	24.9	130.6
	H15	Priv	Pt Positioned -to- Drapes Removed	15	35.7	41.7	85.6
	H16	Pub	Pt Positioned -to- Dressing Applied	24	33.5	33.5	100.1
	H17	Pub	Surgeon with Pt -to- Drapes Removed	13	33.1	40.4	81.9
	H18	Priv	Pt Positioned -to- Drapes Removed	30	31.5	24.6	128.3
	H19	Pub	Pt Positioned -to- Dressing Applied	21	38.1	31.0	122.8
	H20	Pub	Pt Positioned -to- Dressing Applied	14	28.9	29.6	97.6
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	2	25.0	79.4	31.5
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	18	65.6	44.6	147.1
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	8	45.6	31.1	146.6
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	17	30.3	28.0	108.3
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	8	33.8	33.0	102.2
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	8	26.3	16.2	162.1
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	9	31.7	27.8	114.0
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	15	34.3	41.4	82.9
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	24	33.5	36.2	92.8
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	14	32.5	43.7	74.4
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	29	31.2	26.9	116.1
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	23	40.7	37.0	109.9
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	15	28.3	34.3	82.7
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Sta	19	62.9	47.3	133.0
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	3	30.0	30.6	98.0
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	4	56.3	60.9	92.3
	H6	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H8	Priv	Prep. Anaes. -to- Drapes Removed	16	30.3	33.1	91.7
	H10	Priv	Prep. Anaes. -to- Drapes Removed	2	45.0	53.5	84.1
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	10	32.5	28.9	112.5
	H15	Priv	Induction of Anaes -to- Drapes Removed	15	35.7	49.5	72.1
	H16	Pub	Prep. Anaes. -to- Dressing Applied	24	33.5	40.0	83.9
	H17	Pub	Prep. Anaes. -to- Drapes Removed	14	32.5	52.4	62.1
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	28	31.4	30.4	103.3
	H19	Pub	Prep. Anaes. -to- Dressing Applied	20	41.5	43.6	95.3
	H20	Pub	Prep. Anaes. -to- Dressing Applied	17	28.5	56.7	50.3
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	19	62.9	49.7	126.5
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	7	47.9	34.6	138.4
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	46	62.2	62.0	100.3
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	6	43.3	44.5	97.4
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	16	30.3	35.3	86.0
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	7	35.7	42.5	84.0
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	7	28.6	28.7	99.6
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	4	32.5	39.5	82.3
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	4	35.0	32.4	107.9
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	33	36.5	58.6	62.3
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	15	34.3	48.2	71.2
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	24	33.5	42.6	78.7
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	14	32.5	57.7	56.4
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	25	39.4	48.9	80.6
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	17	28.5	60.5	47.2
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	19	62.9	54.5	115.5
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	31	32.1	36.3	88.5
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	2	17.5	23.7	73.8
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	4	32.5	54.3	59.9
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	10	32.5	33.1	98.2
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	18	32.8	69.9	46.9
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	29	31.9	32.2	99.2
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	25	39.4	63.2	62.3
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	16	29.7	44.8	66.4
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	30	27.2	27.7	98.1
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Sta	6	38.3	21.9	174.9

* Definition of Time
- see Attachment A

**** Median ratio of ANAEN intra time estimates to OPT**
Unweighted = 119.2 %
Weighted (for number of items in common) = 122.8 %

Attachment 2 (continued)

COMPARISON OF ANAESTHESIOLOGY AND HYPERBARIC MEDICINE - PROXY ITEMS (ANAEP) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x ANAEP /OTE
	ID	Type	Definition of Time *		ANAEP	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	68	72.1	50.8	141.9
	H6	Priv	Knife to Skin -to- Drapes Removed	53	73.6	49.2	149.6
	H11	Priv	Pt Prepped -to- Drapes Remove	61	82.3	78.7	104.6
OPERATION TIME (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	54	67.2	43.4	155.1
	H8	Priv	Pt Positioned -to- Drapes Removed	72	75.1	47.4	158.5
	H10	Priv	Pt Positioned -to- Drapes Removed	43	83.6	51.7	161.7
	H13	Priv	Pt Positioned -to- Drapes Removed	48	66.0	44.0	150.0
	H15	Priv	Pt Positioned -to- Drapes Removed	86	113.4	65.2	173.8
	H16	Pub	Pt Positioned -to- Dressing Applied	101	115.8	84.1	137.8
	H17	Pub	Surgeon with Pt -to- Drapes Removed	110	155.6	129.1	120.6
	H18	Priv	Pt Positioned -to- Drapes Removed	91	94.2	57.6	163.6
	H19	Pub	Pt Positioned -to- Dressing Applied	85	125.7	95.5	131.7
	H20	Pub	Pt Positioned -to- Dressing Applied	87	89.6	61.4	145.9
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	78	106.2	78.8	134.8
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	100	103.4	76.1	135.9
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	60	82.1	56.6	145.0
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	72	75.1	51.8	144.9
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	62	130.5	93.4	139.6
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	39	54.2	38.8	139.7
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	50	66.5	49.6	134.1
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	86	113.9	70.4	161.7
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	102	115.3	90.8	127.0
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	111	155.1	137.9	112.4
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	93	94.5	65.1	145.2
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	104	130.0	101.9	127.5
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	86	88.1	68.5	128.7
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staf	101	102.8	81.5	126.1
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	56	68.5	59.9	114.4
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	66	76.0	86.7	87.7
	H6	Priv	Prep. Anaes. -to- Drapes Removed	54	72.6	58.4	124.3
	H8	Priv	Prep. Anaes. -to- Drapes Removed	73	75.1	58.9	127.6
	H10	Priv	Prep. Anaes. -to- Drapes Removed	44	82.4	67.3	122.5
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	50	66.5	58.8	113.2
	H15	Priv	Induction of Anaes -to- Drapes Removed	87	113.3	79.8	142.0
	H16	Pub	Prep. Anaes. -to- Dressing Applied	103	112.0	98.2	114.1
	H17	Pub	Prep. Anaes. -to- Drapes Removed	110	155.9	163.1	95.5
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	92	95.9	76.5	125.5
	H19	Pub	Prep. Anaes. -to- Dressing Applied	88	123.2	120.0	102.7
	H20	Pub	Prep. Anaes. -to- Dressing Applied	88	89.2	83.6	106.7
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	101	102.8	84.2	122.0
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	59	82.9	68.4	121.1
ANAESTHETIC TIME 2 ** (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	205	163.6	186.5	87.7
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	71	106.9	96.9	110.3
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	48	52.5	35.4	148.3
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	76	73.8	62.7	117.7
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	63	128.9	106.9	120.6
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	40	53.5	51.1	104.8
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	63	81.1	96.5	84.1
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	29	59.5	58.9	101.0
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	115	139.6	143.6	97.2
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	89	118.0	95.9	123.1
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	102	112.9	106.0	106.5
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	110	155.9	171.9	90.7
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	106	128.1	126.2	101.5
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	90	87.7	91.9	95.5
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	101	102.8	90.2	113.9
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	124	114.5	94.8	120.8
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	83	101.3	76.0	133.3
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	26	77.3	67.9	113.9
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	63	81.1	114.3	71.0
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	51	66.8	64.1	104.1
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	89	118.9	112.5	105.7
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	94	94.5	81.3	116.3
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	105	129.1	144.4	89.4
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	74	58.0	35.0	165.9
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	102	61.2	43.9	139.5
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	53	48.3	30.5	158.3

* Definition of Time
- see Attachment A

**** Median ratio of ANAEP intra time estimates to OAT2**
Unweighted = 105.7 %
Weighted (for number of items in common) = 101.5 %

THEATRE TIMES DEFINITIONS-STANDARDISED FROM HOSPITALS AND OTHER SOURCES

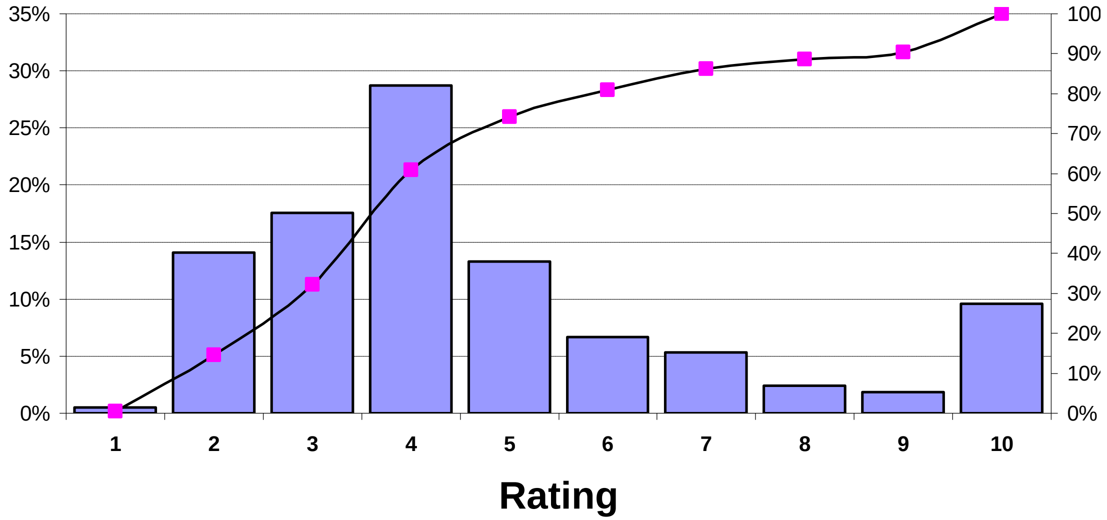
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Frequency	%age	Cume %age
1	2	0.5%	0.5%
2	53	14.1%	14.6%
3	66	17.6%	32.2%
4	108	28.7%	60.9%
5	50	13.3%	74.2%
6	25	6.6%	80.9%
7	20	5.3%	86.2%
8	9	2.4%	88.6%
9	7	1.9%	90.4%
10	36	9.6%	100.0%
Total	376	100.0%	

Number of missing values = 0

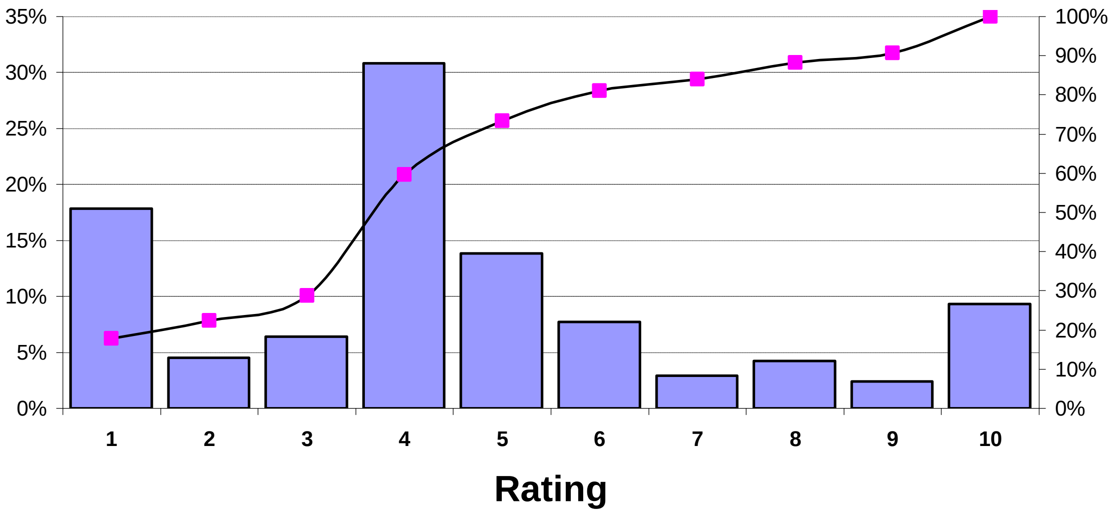


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Frequency	%age	Cume %age
1	67	17.8%	17.8%
2	17	4.5%	22.3%
3	24	6.4%	28.7%
4	116	30.9%	59.6%
5	52	13.8%	73.4%
6	29	7.7%	81.1%
7	11	2.9%	84.0%
8	16	4.3%	88.3%
9	9	2.4%	90.7%
10	35	9.3%	100.0%
Total	376	100.0%	

Number of missing values = 0

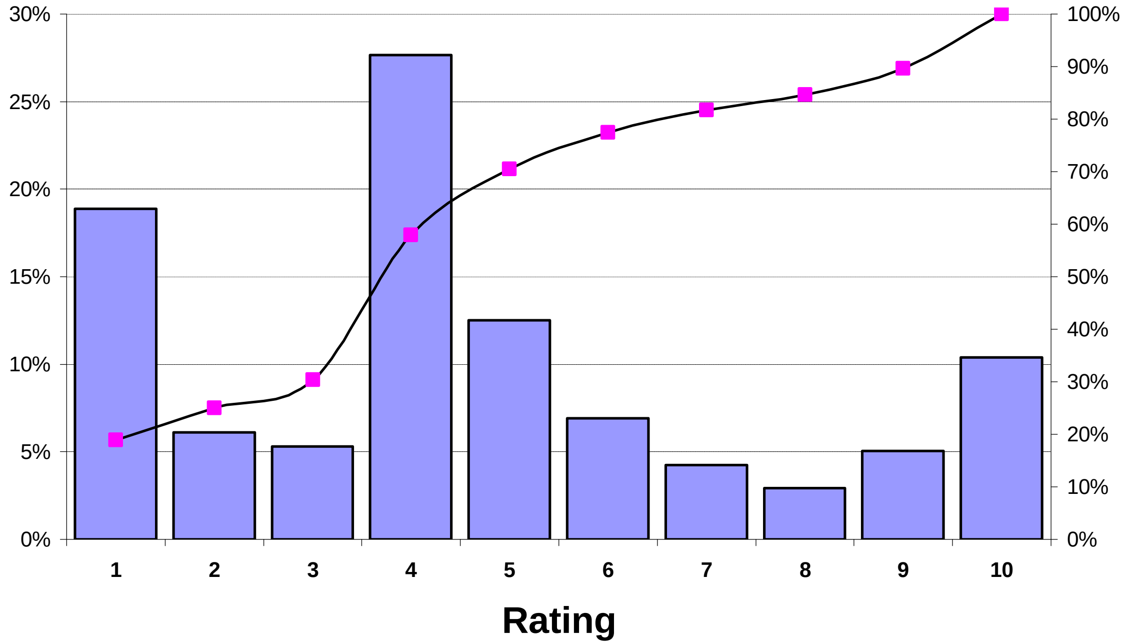


Attachment 3 - Continued

Summary Report for Stress

Rating	Frequency	%age	Cume %age
1	71	18.9%	18.9%
2	23	6.1%	25.0%
3	20	5.3%	30.3%
4	104	27.7%	58.0%
5	47	12.5%	70.5%
6	26	6.9%	77.4%
7	16	4.3%	81.6%
8	11	2.9%	84.6%
9	19	5.1%	89.6%
10	39	10.4%	100.0%
Total	376	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Anaesthesiology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Proxy Items	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	20	12	0	32
Oral and Maxillo-Facial Surgery	0	0	16	16
Obstetrics / Gynaecology	0	0	5	5
General Surgery	0	0	65	65
Cardio Thoracic Surgery	0	0	5	5
Neurosurgery	0	6	23	29
Orthopaedic Surgery	0	0	65	65
Paediatric Surgery	0	1	16	17
Plastic Surgery	0	0	0	0
Urology	0	0	0	0
Vascular Surgery	0	0	7	7
Ophthalmology	0	0	0	0
Otolaryngology (Head & Neck Surgery)	0	0	3	3
Dermatology	0	0	45	45
Paediatric / Thoracic Medicine	0	2	63	65
General Medicine	0	5	46	51
Cardiology, Renal, ICU	0	18	25	43
Radiation, Oncology	0	0	26	26
Gastroenterology	0	0	58	58
Neurology	0	0	65	65
Haematology, Medical Oncology	0	4	22	26
Psychiatry	0	0	54	54
Total	20	35	65	120

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Dermatology

Summary Status Report

November 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Dermatology Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 125 items. These comprised 80 procedure items and 45 consultation items.

Analysis of this information showed:

- The median ratio of Dermatology's intra time estimates to NCCH's Theatre Times Database observed procedure times was 120.7%. This suggests an upwards bias in the Group's intra time estimates.

- The Group gave higher ranks to procedure items than to consultation items ($p < 0.05$).

- There were 99 link items and these were spread evenly throughout the rankings.

- There were only 3 potential core items, however these were also spread evenly throughout the rankings.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was **1 to 3.7**. This is lower than the median observed for specialties so far examined. However, in terms of deviations in rates of pay, it should still be possible to align Dermatology's rankings and ratings with those of the other groups.

- The imputed relative values (IRVs)[1] given to procedure items were significantly greater than those given to consultation items ($p < 0.05$).

- There were no significant differences between the IRVs given to link and non-link items nor between good map and poor/no map items.

- The correlation between the imputed relative values for Dermatology and the Medicare Benefits Schedule Fee was poor ($R^2 = 0.68$). It was also poor between the Group's imputed relative values and CPT RV, ($R^2 = 0.43$).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Dermatology are set out in Table 2.1 together with associated standard deviations and ranges.

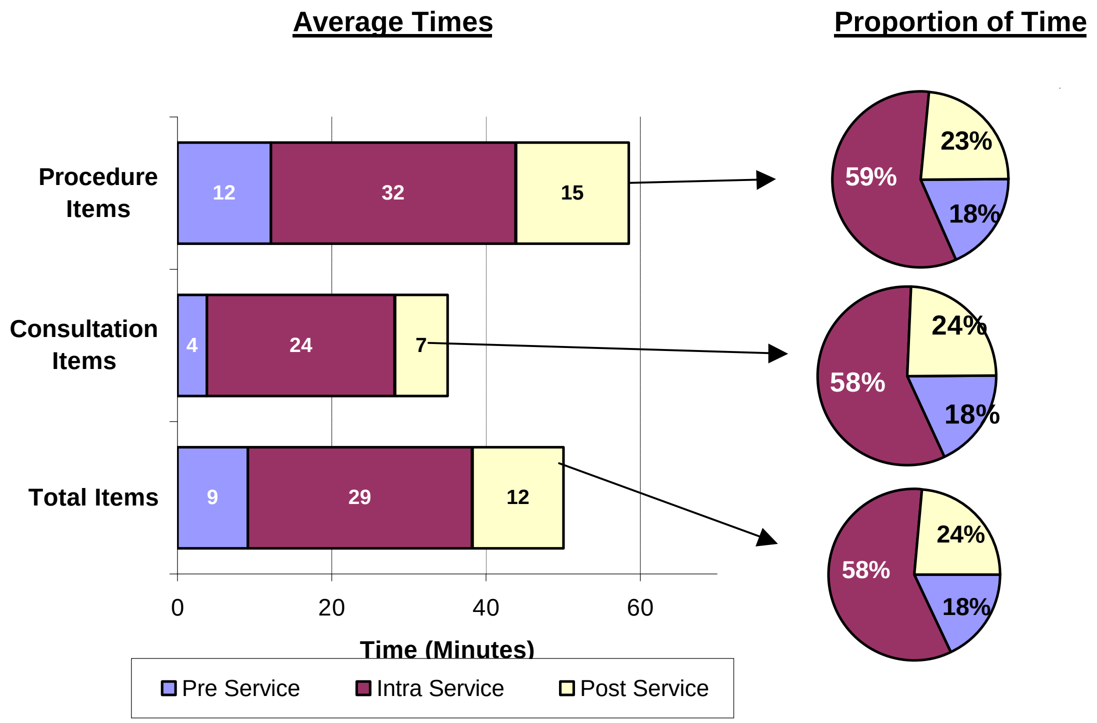
The mean intra service time was 29 minutes and the mean total time was 50 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	9	29	12	50
SD	6	21	11	32
Min	1	3	1	5
Max	30	150	90	185

A graphical presentation of these mean times together with the percentage apportionments c total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	12.1	31.9	14.7	58.7
Consultation Items	3.8	24.4	6.8	35.0
Total Items	9.1	29.2	11.9	50.2

Dermatology's procedure intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies. The median ratio of Dermatology's intra time estimates to the observed procedure times was 120.7%. This implies a tendency by this group to over estimate intra times. Details are provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Dermatology are set out in Table 3.1 together with associated standard deviations and ranges.

The mean ratings were 7.3 for cognitive skill, 7.0 for technical skill and 6.1 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3

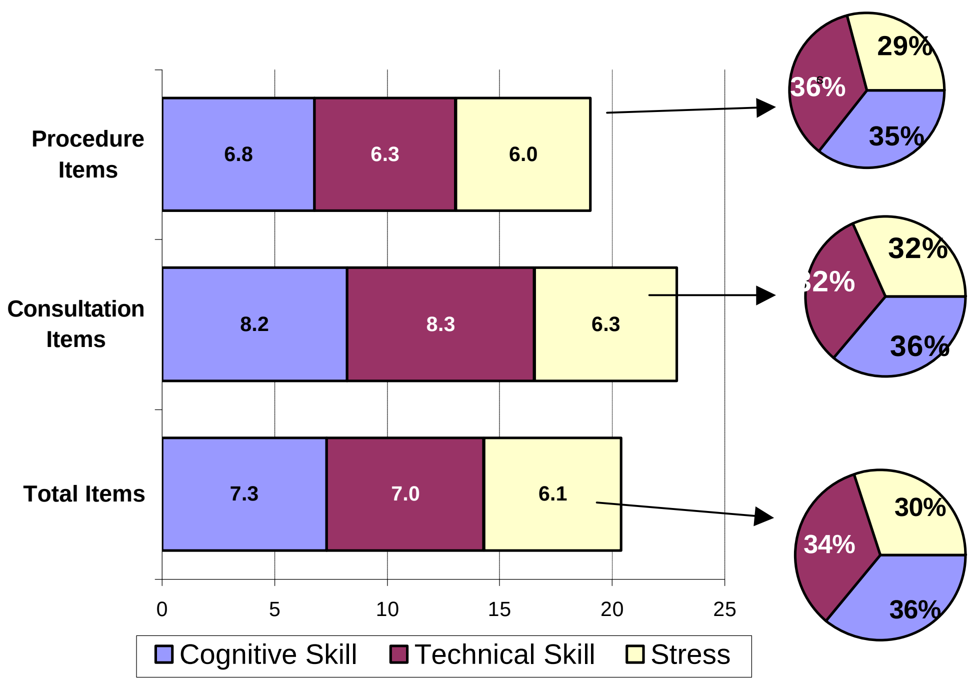
Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	7.3	7.0	6.1	20.4
SD	1.4	1.8	1.7	4.9
Min	3.0	2.0	1.0	6.0
Max	10.0	10.0	9.0	29.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1

Average Intensities **Proportion of Intensity**



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	6.8	6.3	6.0	19.1
Consultation Items	8.2	8.3	6.3	22.8
Total Items	7.3	7.0	6.1	20.4

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1 The procedure items were given higher ranks than the consultation items (sum of ranks test, $p < 0.05$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	80	1	125	58.21
Consultation	45	18	116	71.51
Total	125	1	125	63.00

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Dermatology Consensus Group assessed 99 link items. These comprised all of their 45 consultation items and 54 of the 80 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. There was very little difference between the ranks given to link items and those given to non-link items.

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure-Link	54	18.5	116	71.51
Consultation-Link	45	3	120	56.68
Total Link	99	3	120	63.42
Procedure-Non-link	26	1	125	61.40
Total	125	1	125	63.00

Good maps of Dernatology's items to CPT were available for 3 of their 125 items. A breakdown of the ranks given to these good map items and to the poor/no-map items is set out in Table 4.3. There was very little difference between the average ranks.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	3	29	97.5	63.8
Poor/Non Map	122	1	125	63.0
Total	125	1	125	63.0

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of case these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Dermatology is 1 to 78.5.

By dividing imputed relative values by time we can impute <u>relative</u> rates of pay. The variation in relative rates of pay on intra time is 1 to 3. There is no variation in rates of pay on pre and post times. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is **1 to 3.7**.

The effective range in relative rates of pay is lower than the median observed for specialti examined so far[3]. However, in terms of deviations in rates of pay, it should still be possible to align Dermatology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non-link items and between good map items and poor/no-map items in terms of imputed relative value (IRV) are set out in Table 5.1.

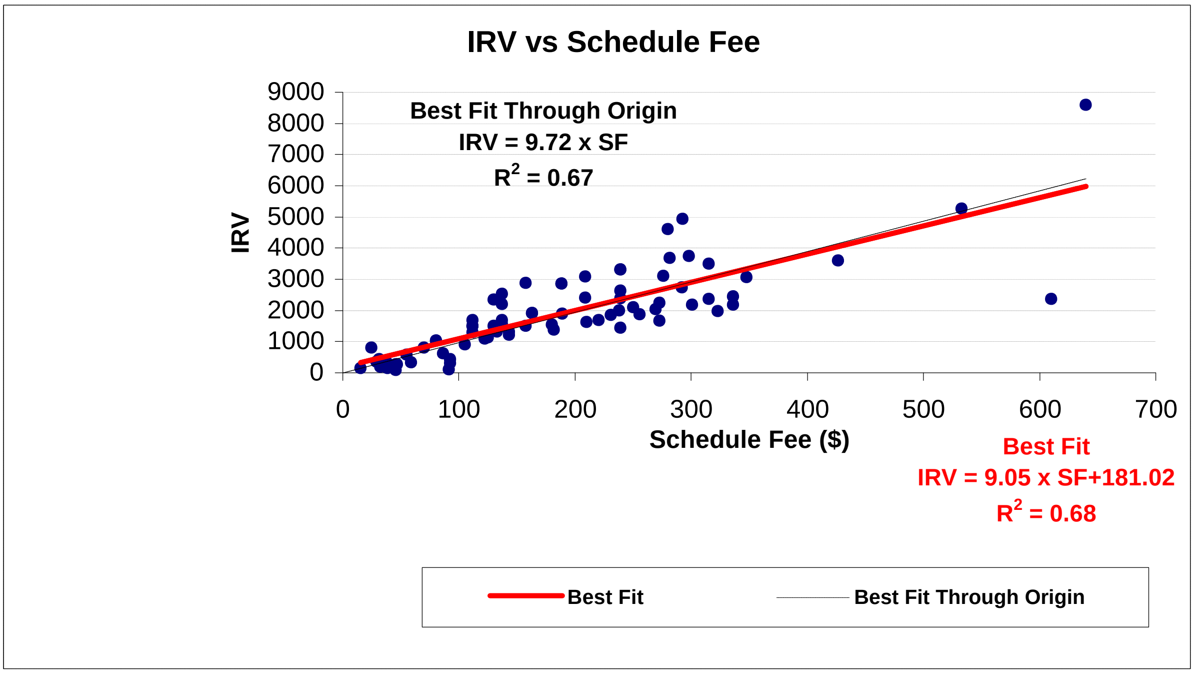
The IRVs given to the procedure items were significantly greater than those given to consultation items in absolute terms (t test, $p<0.05$), but not in relative (i.e. percentage) terms. There were no significant differences between the IRVs given to link and non-link items nor between those given to good map and poor/no map items.

Table 5.1

	Number	IRVs		
Type of Item	**Reviewed**	**Mean ± SD**	**Low**	**High**
Procedure	80	1866 ± 1390	78	8580
Consultation	45	1344 ± 741	290	2640
Link	99	1608 ± 977	188	4928
Non-link	26	1948 ± 1884	78	8580
Good Map	3	1559 ± 785	808	2375
Poor/No Map	122	1681 ± 1231	78	8580
Total	125	1678 ± 1220	78	8580

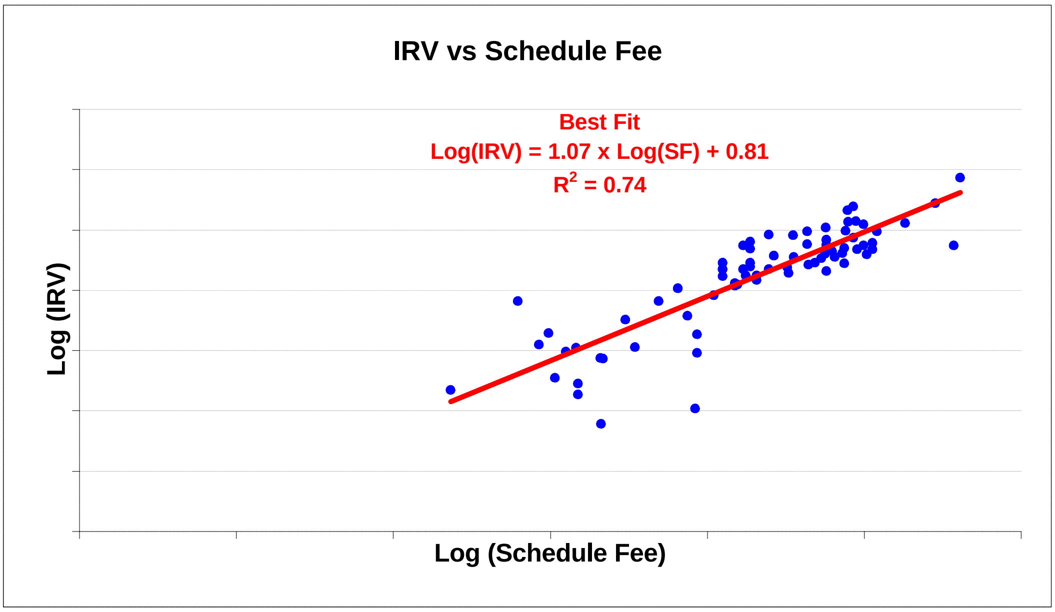
A plot of Dermatology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). Two lines of Best Fit are also shown and they both explain ~67% of the variation in imputed relative values. There are two clear outliers, MBS items 31002 ar 31355. When these are removed the fit improves to $R^2 = 0.70$.

Figure 5.1



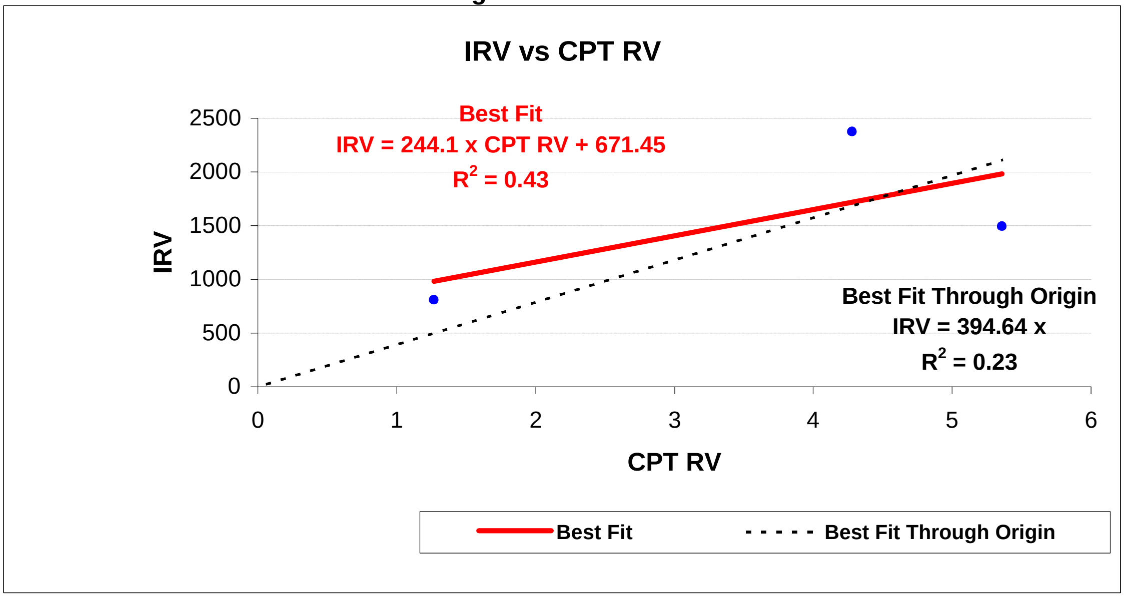
We might expect the magnitude of error deviation to be small for low value items and larg for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is marginally better than that for IRV against Schedule Fee, explaining 74% of the variation as against 68% previously.

Figure 5.2



A plot of Dermatology's IRVs against CPT RV is set out in Figure 5.3. The fit is poor (R^2 = 0.43).

Figure 5.3



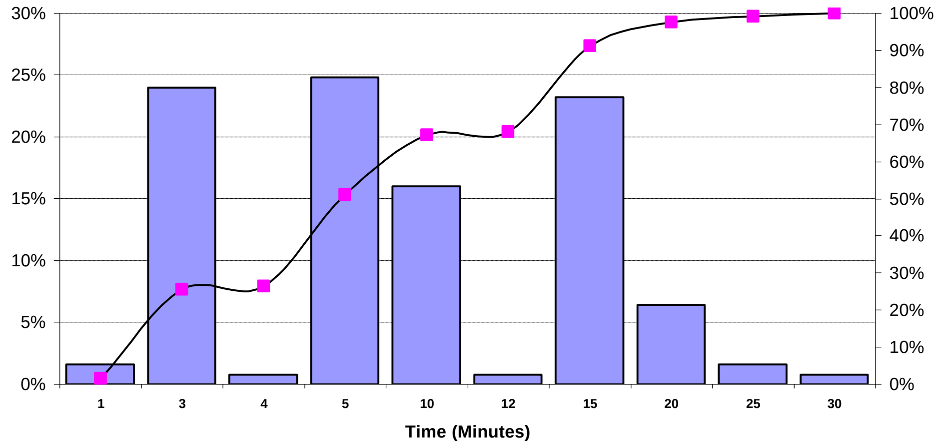
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	2	1.6%	1.6%
3	30	24.0%	25.6%
4	1	0.8%	26.4%
5	31	24.8%	51.2%
10	20	16.0%	67.2%
12	1	0.8%	68.0%
15	29	23.2%	91.2%
20	8	6.4%	97.6%
25	2	1.6%	99.2%
30	1	0.8%	100.0%
Total	125	100.0%	

Number of missing values = 0

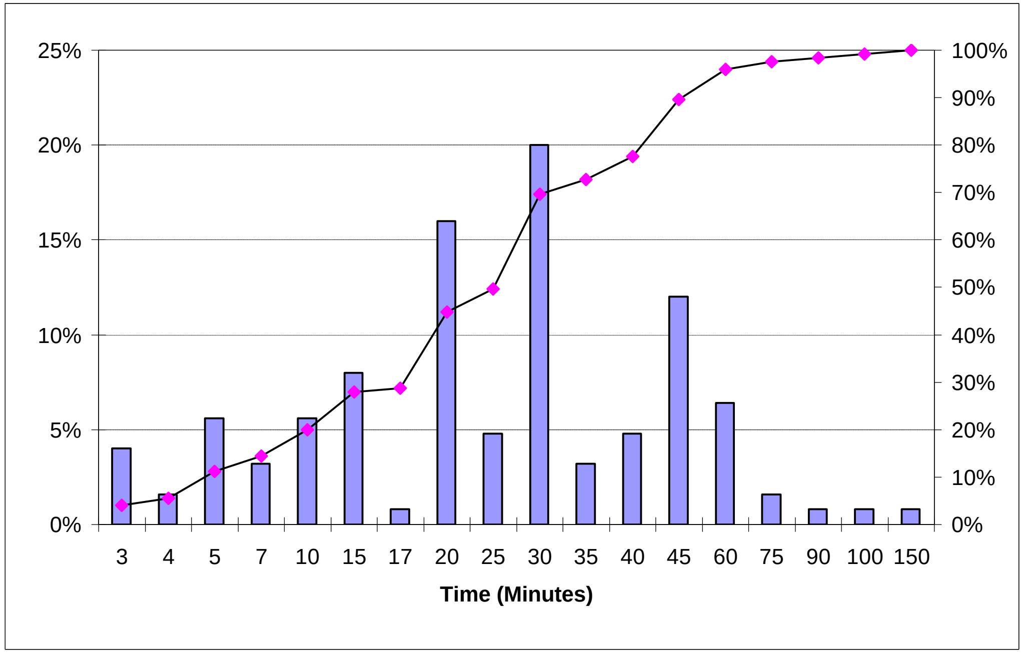


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
3	5	4.0%	4.0%
4	2	1.6%	5.6%
5	7	5.6%	11.2%
7	4	3.2%	14.4%
10	7	5.6%	20.0%
15	10	8.0%	28.0%
17	1	0.8%	28.8%
20	20	16.0%	44.8%
25	6	4.8%	49.6%
30	25	20.0%	69.6%
35	4	3.2%	72.8%
40	6	4.8%	77.6%
45	15	12.0%	89.6%
60	8	6.4%	96.0%
75	2	1.6%	97.6%
90	1	0.8%	98.4%
100	1	0.8%	99.2%
150	1	0.8%	100.0%
Total	125	100.0%	

Number of missing values = 0

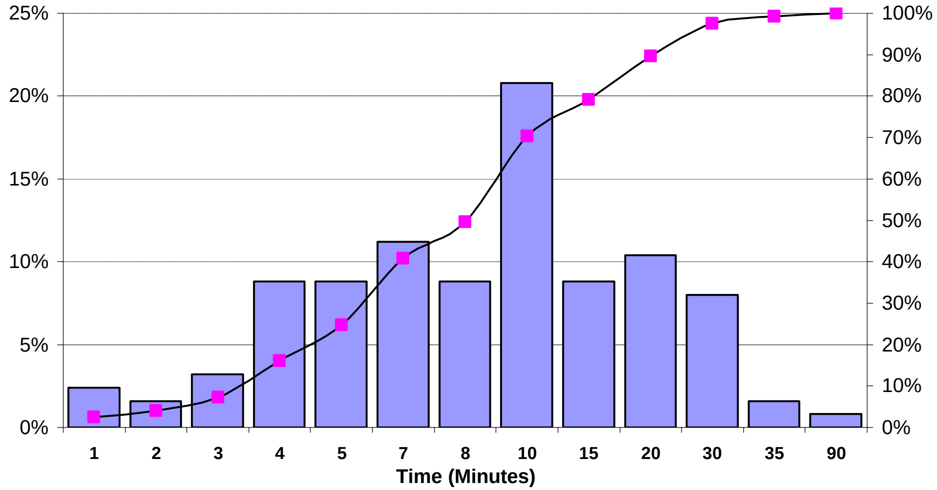


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	3	2.4%	2.4%
2	2	1.6%	4.0%
3	4	3.2%	7.2%
4	11	8.8%	16.0%
5	11	8.8%	24.8%
7	14	11.2%	40.8%
8	11	8.8%	49.6%
10	26	20.8%	70.4%
15	11	8.8%	79.2%
20	13	10.4%	89.6%
30	10	8.0%	97.6%
35	2	1.6%	99.2%
90	1	0.8%	100.0%
Total	125	100.0%	

Number of missing values = 0



COMPARISON OF DERMATOLOGY INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE) ID	Type	Definition of Time *	No. of items in common	Average Time in Minutes DERM	OTE	Ratio 100 x DERM/OTE
OST	H4	Priv	Knife to Skin -to- Dressing Applied	30	32.9	27.3	120.4
	H6	Priv	Knife to Skin -to- Drapes Removed	25	30.4	31.5	96.3
	H11	Priv	Pt Prepped -to- Drapes Removed	27	29.9	52.2	57.3
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	24	29.5	22.9	128.8
	H8	Priv	Pt Positioned -to- Drapes Removed	28	31.6	22.2	142.3
	H10	Priv	Pt Positioned -to- Drapes Removed	17	28.9	20.7	139.6
	H13	Priv	Pt Positioned -to- Drapes Removed	23	31.0	25.9	120.1
	H15	Priv	Pt Positioned -to- Drapes Removed	9	39.7	27.9	142.4
	H16	Pub	Pt Positioned -to- Dressing Applied	33	29.9	28.9	103.5
	H17	Pub	Surgeon with Pt -to- Drapes Removed	31	29.1	34.3	84.8
	H18	Priv	Pt Positioned -to- Drapes Removed	35	31.6	23.9	132.1
	H19	Pub	Pt Positioned -to- Dressing Applied	11	21.7	26.1	83.4
	H20	Pub	Pt Positioned -to- Dressing Applied	33	29.9	20.2	147.9
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	10	32.1	38.5	83.4
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	41	33.6	33.9	99.3
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Removed	9	36.9	30.6	120.7
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	29	30.7	25.0	122.9
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	18	32.3	40.7	79.5
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	22	29.1	27.8	104.5
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	24	31.4	30.6	102.7
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	9	42.4	32.4	131.2
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	35	30.2	33.6	89.9
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	32	29.1	39.4	74.0
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	35	31.6	27.5	115.1
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	15	23.0	29.0	79.2
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	32	30.1	25.5	117.8
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staff	43	33.6	36.7	91.6
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	25	29.4	31.9	92.2
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	27	32.1	57.2	56.2
	H6	Priv	Prep. Anaes. -to- Drapes Removed	27	32.7	42.7	76.7
	H8	Priv	Prep. Anaes. -to- Drapes Removed	29	31.3	30.7	102.3
	H10	Priv	Prep. Anaes. -to- Drapes Removed	17	28.9	30.8	94.1
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	25	31.2	37.3	83.5
	H15	Priv	Induction of Anaes -to- Drapes Removed	10	40.2	35.0	114.8
	H16	Pub	Prep. Anaes. -to- Dressing Applied	34	29.2	37.9	77.0
	H17	Pub	Prep. Anaes. -to- Drapes Removed	34	28.5	50.2	56.8
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	35	31.6	32.6	96.9
	H19	Pub	Prep. Anaes. -to- Dressing Applied	12	24.9	43.6	57.1
	H20	Pub	Prep. Anaes. -to- Dressing Applied	35	31.1	35.9	86.7
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	43	33.6	39.1	85.8
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Removed	9	36.9	37.9	97.4
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	66	36.4	52.7	69.0
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	22	32.6	50.4	64.7
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	35	27.5	27.3	100.7
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	30	32.3	37.1	87.2
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	19	33.8	51.9	65.1
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	24	29.1	40.2	72.4
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	27	30.4	64.0	47.5
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	1	30.0	32.5	92.3
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	30	32.5	48.1	67.5
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	10	40.2	39.1	102.9
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	35	29.2	43.1	67.8
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	34	28.5	55.5	51.3
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	17	24.1	43.2	55.8
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	35	31.1	40.9	76.0
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	44	33.6	42.5	79.0
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	38	27.8	28.0	99.3
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	19	27.6	41.4	66.7
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	9	39.1	39.4	99.2
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	28	30.1	81.3	37.0
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	25	31.2	40.4	77.1
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	9	42.4	61.6	68.9
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	35	31.6	36.2	87.4
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	16	24.1	58.8	40.9
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	45	36.5	43.0	84.9
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	52	32.2	42.8	75.2
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staff	22	40.3	54.5	74.0

* Definition of Time
- see Attachment A

**** Median ratio of DERM intra time estimates to OPT**
Unweighted = 120.7 %
Weighted (for number of items in common) = 120.7 %

THEATRE TIMES DEFINITIONS-STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST				PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME								END OP TIME		XFER TO RECOV	XFER FROM RECOV
			PT ENTERS OP SUITE	Anaesth. arrives to talk to Pt	Anaesth. prepares Pt for anaes- cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is position	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
ID	TIME	TYPE																
Hosp4	H4OST	Priv																
Hosp6	H6OST	Priv																
Hosp11	H11OST	Priv																
Hosp1	H1OPT	Priv																
Hosp8	H8OPT	Priv																
Hosp10	H10OPT	Priv																
Hosp13	H13OPT	Priv																
Hosp15	H15OPT	Priv																
Hosp16	H16OPT	Pub																
Hosp17	H17OPT	Pub																
Hosp18	H18OPT	Priv																
Hosp19	H19OPT	Pub																
Hosp20	H20OPT	Pub																
APHA	APHAOPT	Priv																
CANS	CANSOPT	Pub & Priv																
Deloitte	DTOPT	Pub & Priv																
Hosp8	H8OPT2	Priv																
Hosp9A	H9AOPT2	Priv																
Hosp9B	H9BOPT2	Priv/Day																
Hosp13	H13OPT2	Priv																
Hosp15	H15OPT2	Priv																
Hosp16	H16OPT2	Pub																
Hosp17	H17OPT2	Pub																
Hosp18	H18OPT2	Priv																
Hosp19	H19OPT2	Pub																
Hosp20	H20OPT2	Pub																
CANS	CANSOPT2	Pub & Priv																
Hosp1	H1OAT	Priv																
Hosp4	H4OAT	Priv																
Hosp6	H6OAT	Priv																
Hosp8	H8OAT	Priv																
Hosp10	H10OAT	Priv																
Hosp13	H13OAT	Priv																
Hosp15	H15OAT	Pub																
Hosp16	H16OAT	Pub																
Hosp17	H17OAT	Priv																
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub																
Hosp20	H20OAT	Pub & Priv																
CAnS	CANSOAT	Pub & Priv																
Deloitte	DTOAT	Pub & Priv																
MBS	MBSOAT2	Pub & Priv																
Hosp5	H5OAT2	Priv																
Hosp7	H7OAT2	Priv/Day																
Hosp8	H8OAT2	Priv																
Hosp9A	H9AOAT2	Priv																
Hosp9B	H9BOAT2	Priv/Day																
Hosp11	H11OAT2	Priv																
Hosp12	H12OAT2	Pub																
Hosp14	H14OAT2	Pub																
Hosp15	H15OAT2	Priv																
Hosp16	H16OAT2	Pub																
Hosp17	H17OAT2	Pub																
Hosp19	H19OAT2	Pub																
Hosp20	H20OAT2	Pub																
CANS	CANSOAT2	Pub & Priv																
WAGroup	WAOAT2	Priv																
Hosp2	H2THT	Priv																
Hosp3	H3THT	Pub																
Hosp11	H11THT	Pub																
Hosp13	H13THT	Priv																
Hosp15	H15THT	Priv																
Hosp18	H18THT	Priv																
Hosp19	H19THT	Day & Other																
C'mix -Pub	CMXPUTHT	Priv																
C'mix -Pte	CMXPVTHT	Priv																
C'mix-oth	CMXOTTHT	Priv																

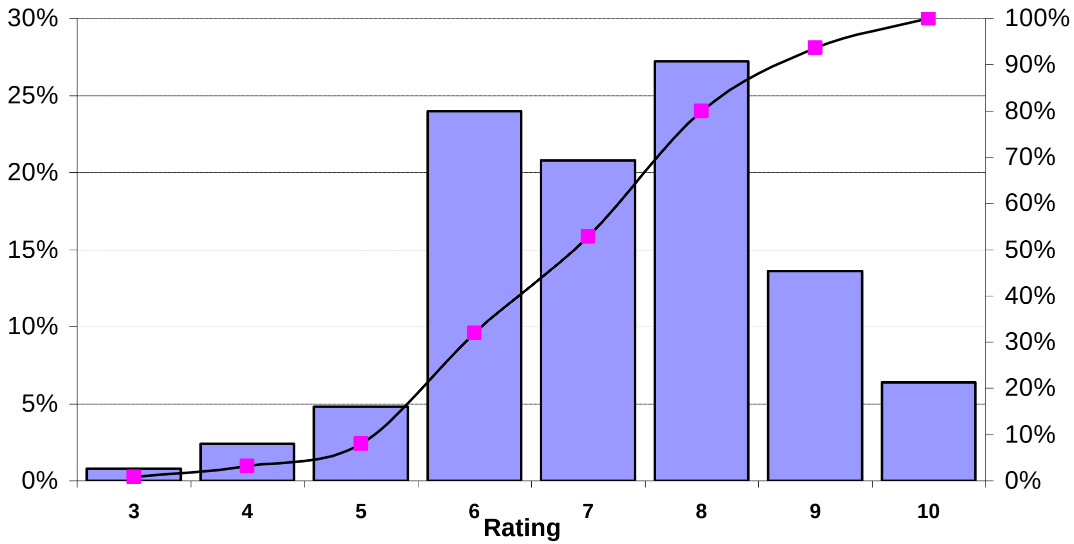
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
3	1	0.8%	0.8%
4	3	2.4%	3.2%
5	6	4.8%	8.0%
6	30	24.0%	32.0%
7	26	20.8%	52.8%
8	34	27.2%	80.0%
9	17	13.6%	93.6%
10	8	6.4%	100.0%
Total	125	100.0%	

Number of missing values = 0

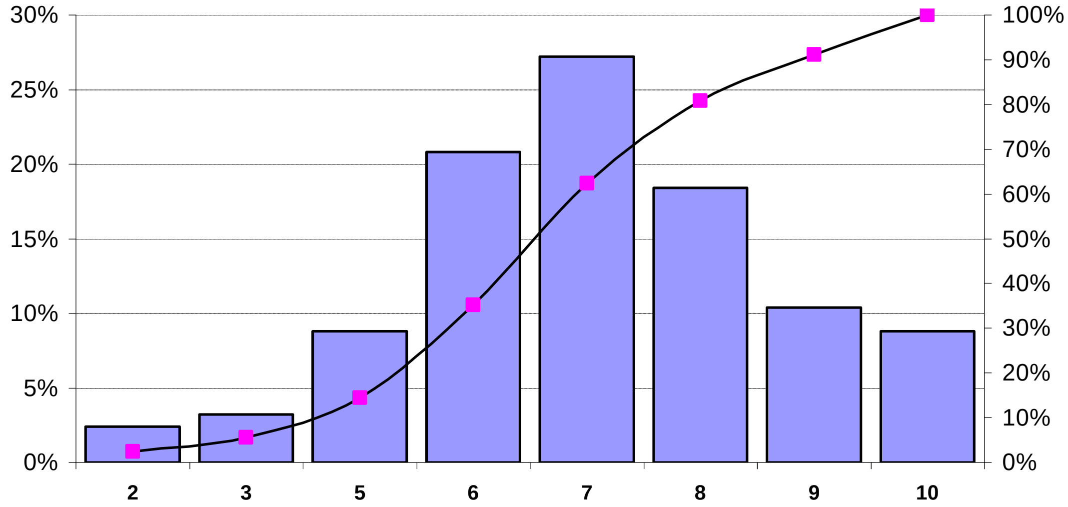


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
2	3	2.4%	2.4%
3	4	3.2%	5.6%
5	11	8.8%	14.4%
6	26	20.8%	35.2%
7	34	27.2%	62.4%
8	23	18.4%	80.8%
9	13	10.4%	91.2%
10	11	8.8%	100.0%
Total	125	100.0%	

Number of missing values = 0

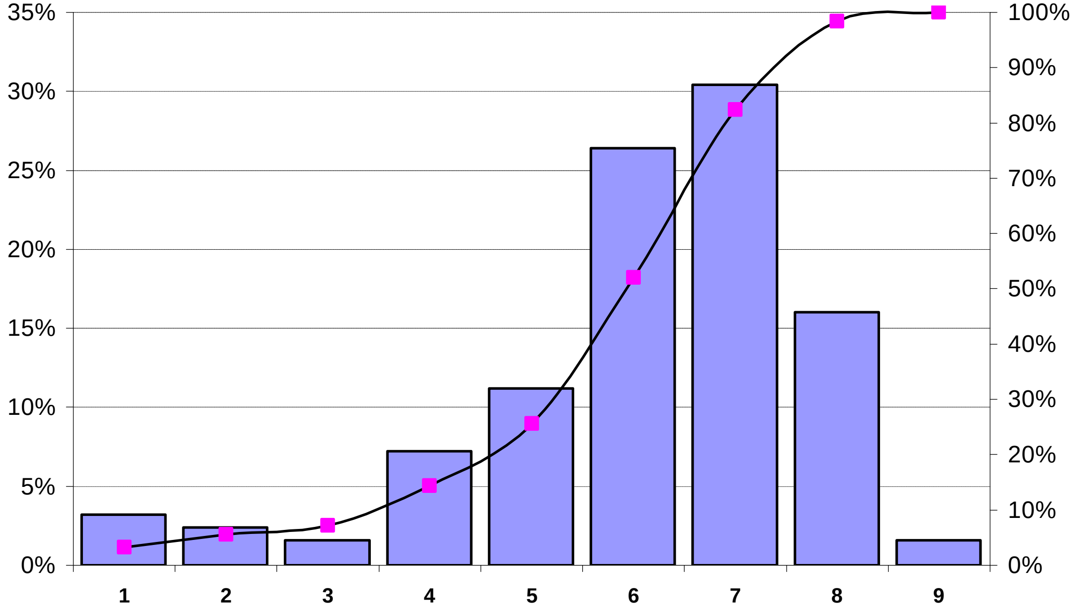


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
1	4	3.2%	3.2%
2	3	2.4%	5.6%
3	2	1.6%	7.2%
4	9	7.2%	14.4%
5	14	11.2%	25.6%
6	33	26.4%	52.0%
7	38	30.4%	82.4%
8	20	16.0%	98.4%
9	2	1.6%	100.0%
Total	125	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Dermatology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	22	0	22
Oral and Maxillo-Facial Surgery	2	12	14
Obstetrics / Gynaecology	0	0	0
General Surgery	19	42	61
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	15	6
Orthopaedic Surgery	0	45	6
Paediatric Surgery	0	11	11
Plastic Surgery	36	0	36
Urology	0	0	0
Vascular Surgery	2	0	2
Ophthalmology	1	0	1
Otolaryngology (Head & Neck Surgery)	0	3	3
Anaesthesia	0	45	45
Paediatric / Thoracic Medicine	0	42	42
General Medicine	2	26	28
Cardiology, Renal, ICU	0	0	0
Radiation, Oncology	2	6	8
Gastroenterology	0	38	38
Neurology	0	45	45
Haematology, Medical Oncology	0	7	7
Psychiatry	0	34	34
Total	54	45	99

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Paediatric Medicine / Thoracic Medicine

Summary Status Report

September 1, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Paediatric and Thoracic Medicine Consensus Group.

The Paediatric and Thoracic Medicine Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 94 items. These comprised 31 procedure items and 63 consultation items.

Analysis of this information showed:

- The median ratio of Paediatric and Thoracic Medicine's intra time estimates to NCCH's Theatre Times Database observed procedure times was 118.3%. This implies a slight tendency to over estimate intra times,

- The group gave significantly lower ranks to procedure items than to consultation items ($p < 0.01$),

- There was no bias in the ranking of either link items or potential core items,

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 3.5. This is less than the median observed for specialties so far examined. However it is consistent with the better sets of rankings and ratings. In terms of deviations in rates of pay, there shouldn't therefore be any major difficulty in aligning Paediatric and Thoracic Medicine's rankings and ratings with those of the other groups at a similar stage of development.

- Consultation items were given significantly greater imputed relative values[1] than procedure items.

- There was no significant difference in imputed relative values between link items and non link items nor between good map items and poor/no map items.

- The correlation between the imputed relative values for Paediatric and Thoracic Medicine and both schedule fee and CPT RV were lower than anticipated. This appears to be due to the effect of one or two extreme outliers rather than a structural difference.

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Paediatric and Thoracic Medicine are set out in Table 2.1 together with associated standard deviations and ranges.

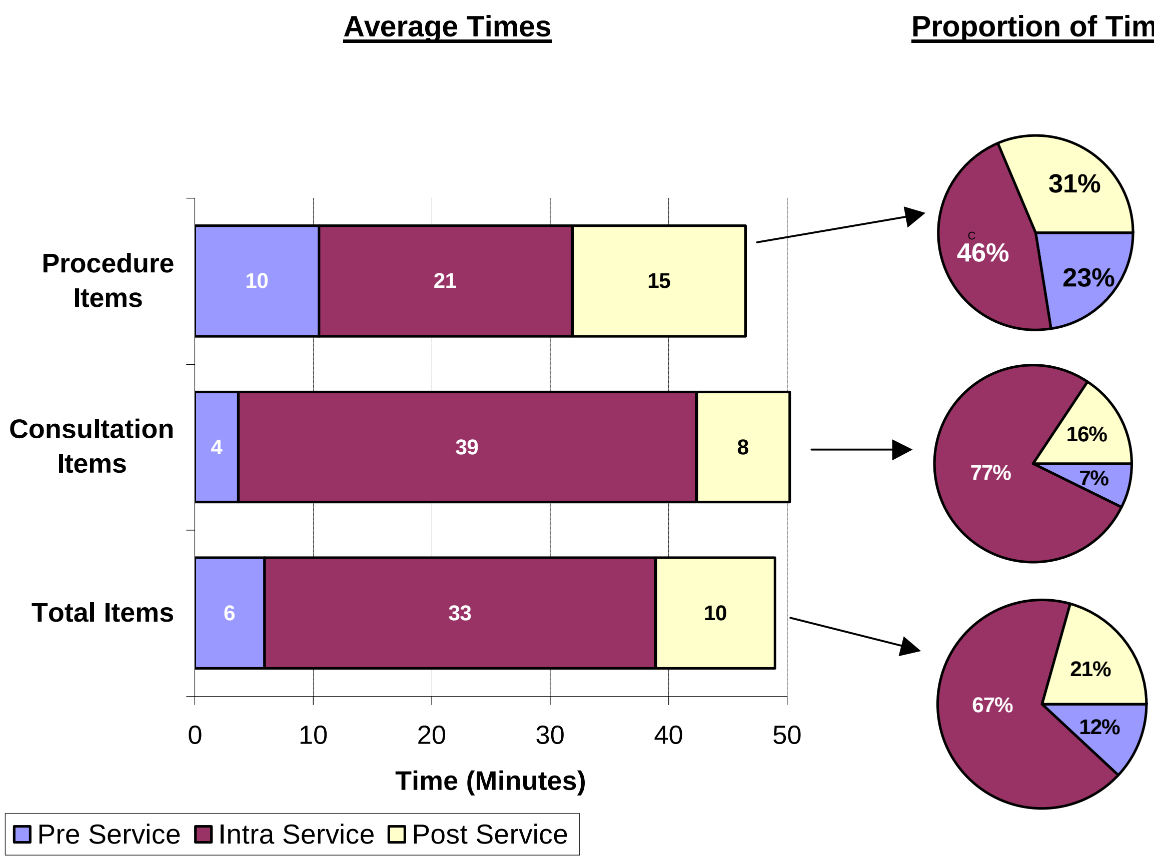
The mean intra service time was 33 minutes and the mean total time was 49 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	6	33	10	49
SD	5	26	10	31
Min	0	0	1	6
Max	30	150	60	195

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	10.5	21.4	14.6	46.5
Consultation Items	3.7	38.7	7.9	50.3
Total Items	5.9	33.0	10.1	49.0

Paediatric and Thoracic Medicine's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Paediatric and Thoracic Medicine's intra time estimates to the observed procedure times was 118.3%. This implies a slight tendency by this Consensus Group to over estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Paediatric and Thoracic Medicine are set out in Table 3.1 together with associated standard deviations and ranges.

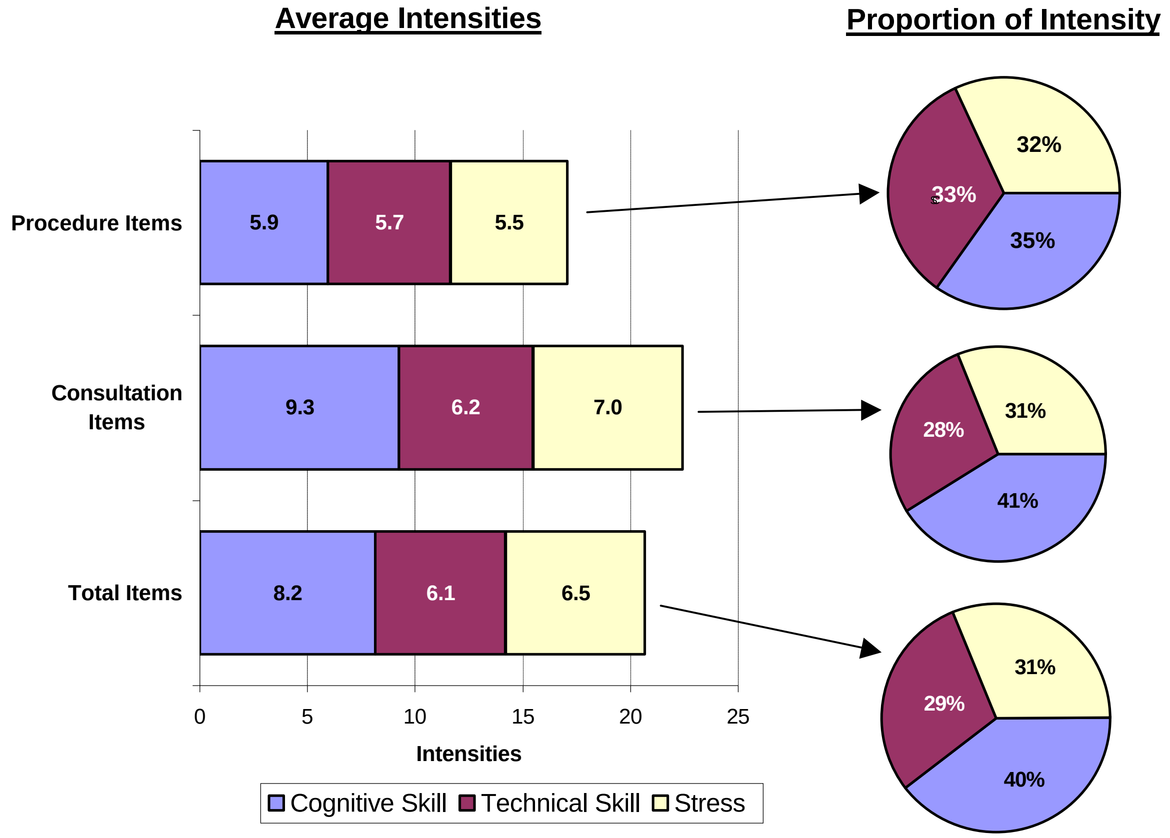
The mean ratings were 8.2 for cognitive skill, 6.1 for technical skill and 6.5 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	8.2	6.1	6.5	20.8
SD	2.2	1.8	2.5	5.5
Min	2.0	1.0	1.0	5.0
Max	10.0	10.0	10.0	29.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	**Cognitive Skill**	**Technical Skill**	**Stress**	**Total Intensity**
Procedure Items	5.9	5.7	5.5	17.1
Consultation Items	9.3	6.2	7.0	22.5
Total Items	8.2	6.1	6.5	20.8

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (that is time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given significantly lower ranks than the consultation items (Sum of ranks test, $p < 0.01$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	31	1	94	58.2
Consultation	63	2	91	42.2
Total	94	1	94	47.5

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Paediatric and Thoracic Medicine Consensus Group assessed 85 link items. These comprised all 63 of their consultation items and 22 of the 31 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were not significantly different from those given to non-link items.

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	63	2	91	42.2
Procedure-Link	22	9	94	61.3
Total Link	85	2	94	47.1
Non-Link (Procedure)	9	1	93	50.8
Total	94	1	94	47.5

Good maps of Paediatric and Thoracic Medicine's items to CPT were available for 14 of their 94 items. A breakdown of the ranks given to these good map items and to the poor/non map items is set out in Table 4.3. The ranks given to the good map items were not significantly different from those given to the poor/non map items. This means that good map items (i.e. potential core items) are well spread throughout the ranks.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	14	1	90	54.0
Poor/Non Map	80	2	94	46.4
Total	94	1	94	47.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Paediatric and Thoracic Medicine is 1 to 94.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 1.96. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 3.5.

These ranges in relative rates of pay are slightly lower than the median observed for specialties examined so far[3]. Nevertheless, they are consistent with the better sets of rankings and ratings. In terms of deviations in rates of pay, there shouldn't therefore be any major difficulty in aligning Paediatric and Thoracic Medicine's rankings and ratings with those of the other groups at a similar stage of development

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non link items and between Good Map Items and Poor/No Map Items in terms of imputed relative value (IRV) are set out in Table 5.1.

The consultation items were given significantly greater imputed relative values than the procedure items (t tests, $p < 0.05$ using untransformed data, $p < 0.01$ using log transformed data). There were no significant differences between the imputed relative values given to link items and non-link items, nor between those given to good map items and poor/no map items.

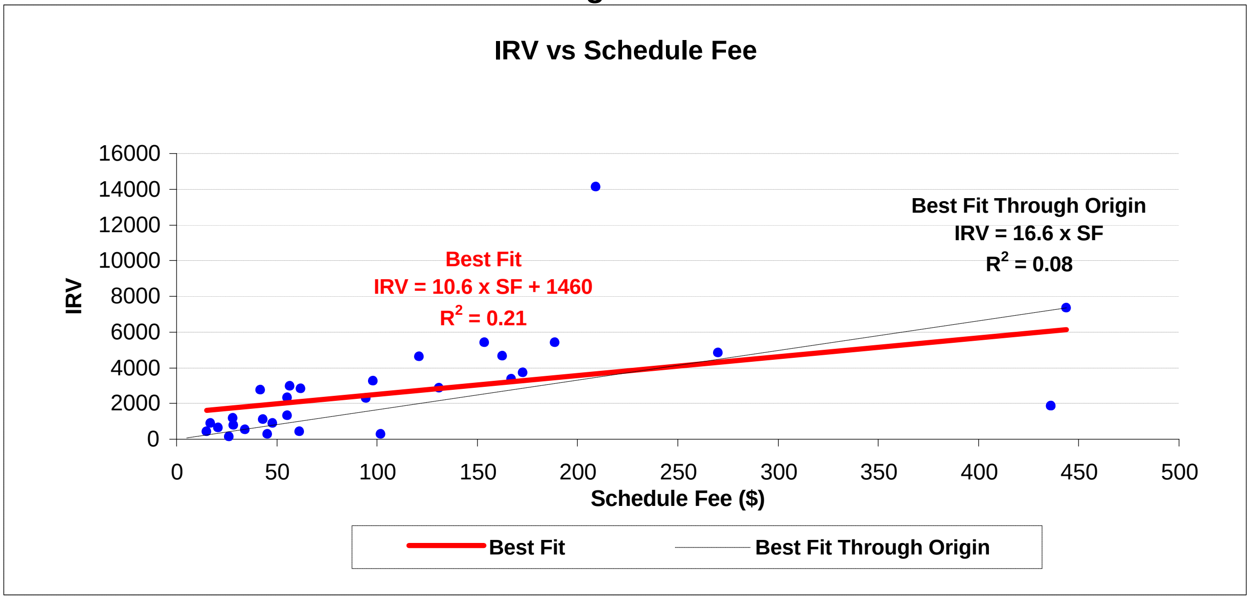
Table 5.1

	Number	IRVs			
Type of Item	**Reviewed**	**Mean**	**± SD**	**Low**	**High**
Consultation	63	3931	± 2415	396	8601
Procedure	31	2763	± 2810	150	14145
Link	85	3506	± 2393	150	8601
Non-link	9	3922	± 4253	290	14145
Good Map	14	3377	± 3685	420	14145
Poor/No Map	80	3576	± 2387	150	8601
Total	94	3546	± 2597	150	14145

A plot of Paediatric and Thoracic Medicine's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is not good but this is largely due to two outliers (MBS Items 12203 &13309). When they are removed, the fit improves dramatically (from R^2=0.21 to 0.44)[4].

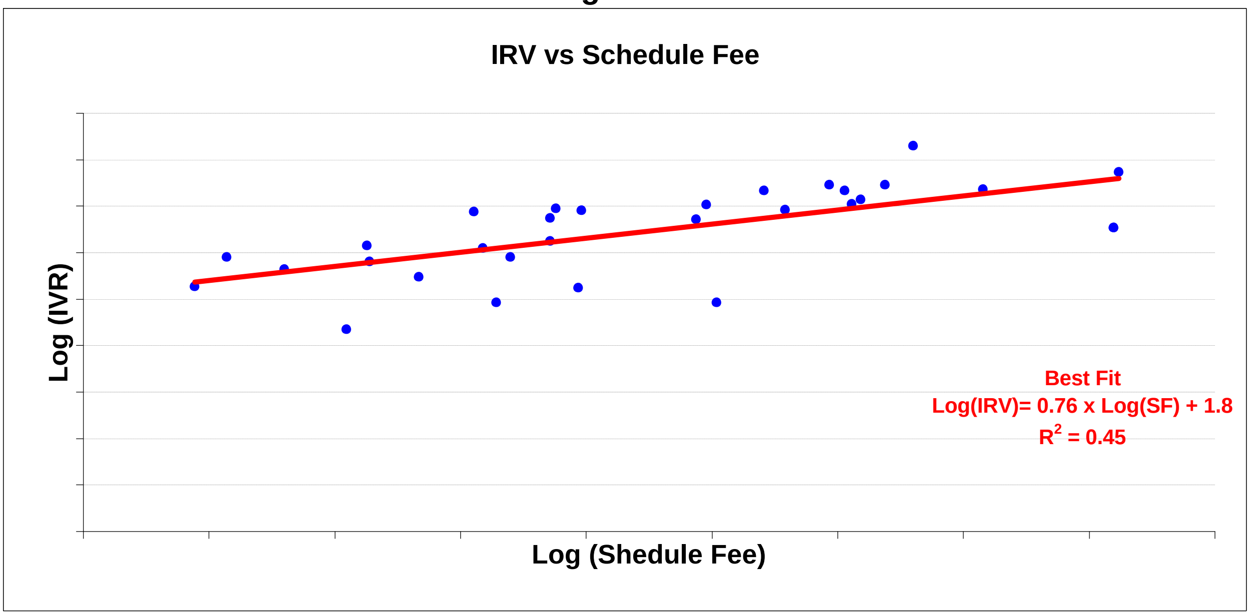
[4] An R^2 value of 0.21 means that the line explains 21% of the variation. An R^2 value of 0.44 means that the line explains 44% of the variation.

Figure 5.1



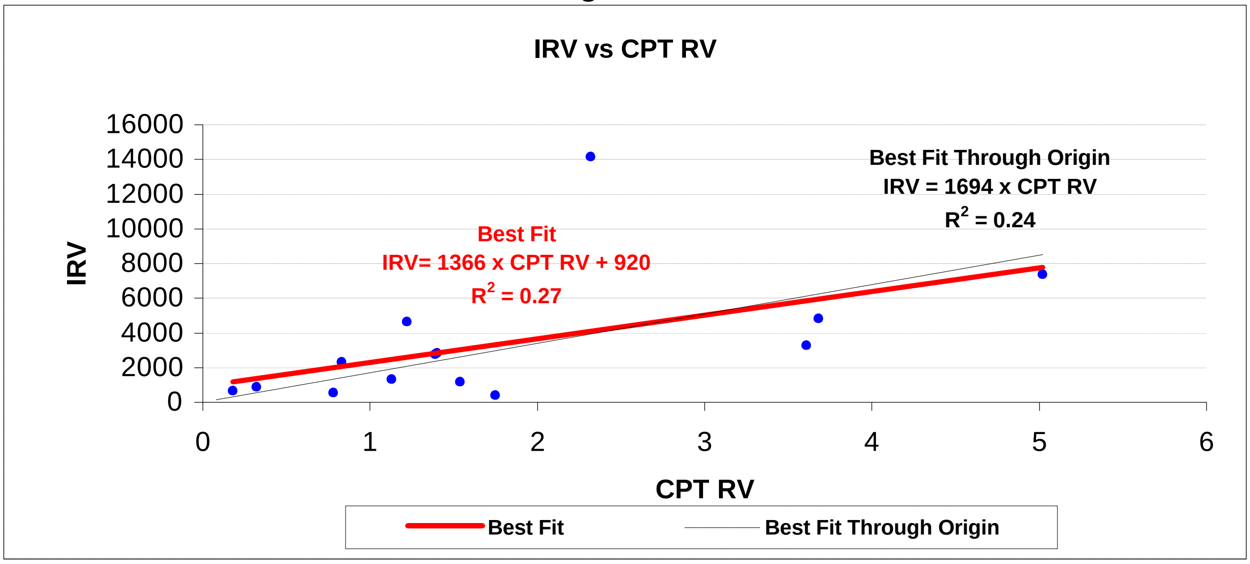
We would expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is indeed much better. MBS Items 12203 and 13309 do not have nearly as much effect.

Figure 5.2



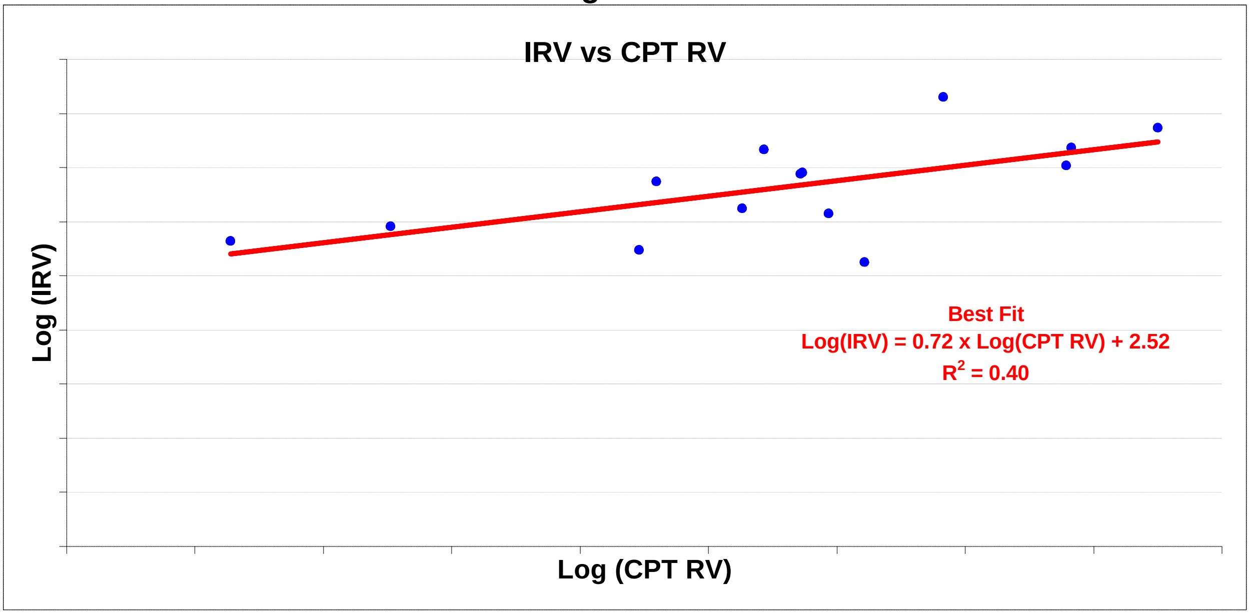
A plot of Paediatric and Thoracic Medicine's IRVs against CPT RV is set out in Figure 5.3. The fit is not good but this is largely due to one outlier (MBS Item 13309). When this outlier is removed, the fit improves dramatically (from R^2=0.27 to 0.63).

Figure 5.3



As for Schedule Fee, we would expect the magnitude of error deviation to increase with CPT RV. Accordingly, a log/log plot is also provided (Figure 5.4).

Figure 5.4



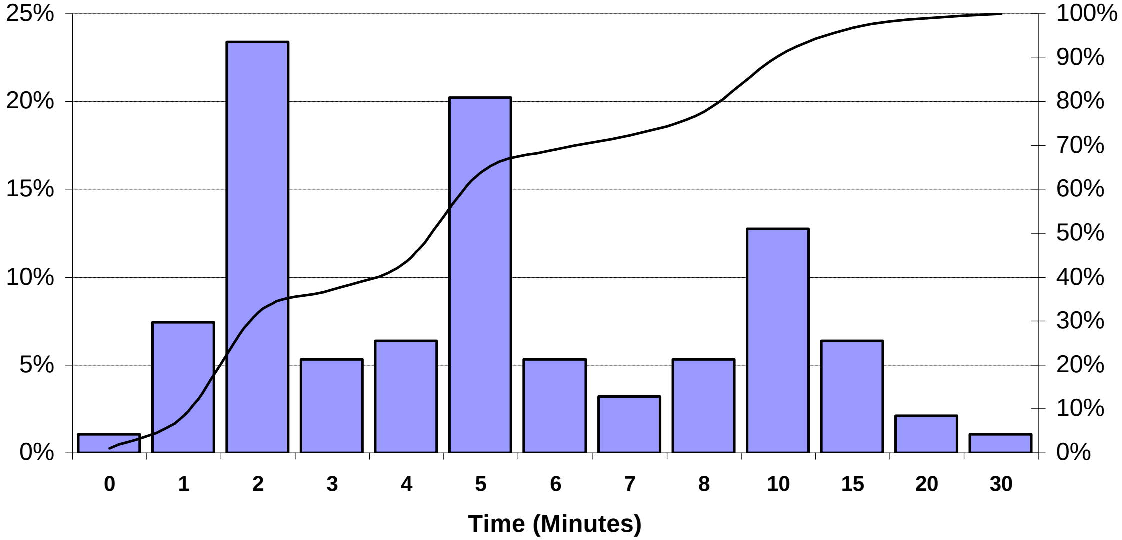
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	1.1%	1.1%
1	7	7.4%	8.5%
2	22	23.4%	31.9%
3	5	5.3%	37.2%
4	6	6.4%	43.6%
5	19	20.2%	63.8%
6	5	5.3%	69.1%
7	3	3.2%	72.3%
8	5	5.3%	77.7%
10	12	12.8%	90.4%
15	6	6.4%	96.8%
20	2	2.1%	98.9%
30	1	1.1%	100.0%
Total	94	100.0%	

Number of missing values = 0

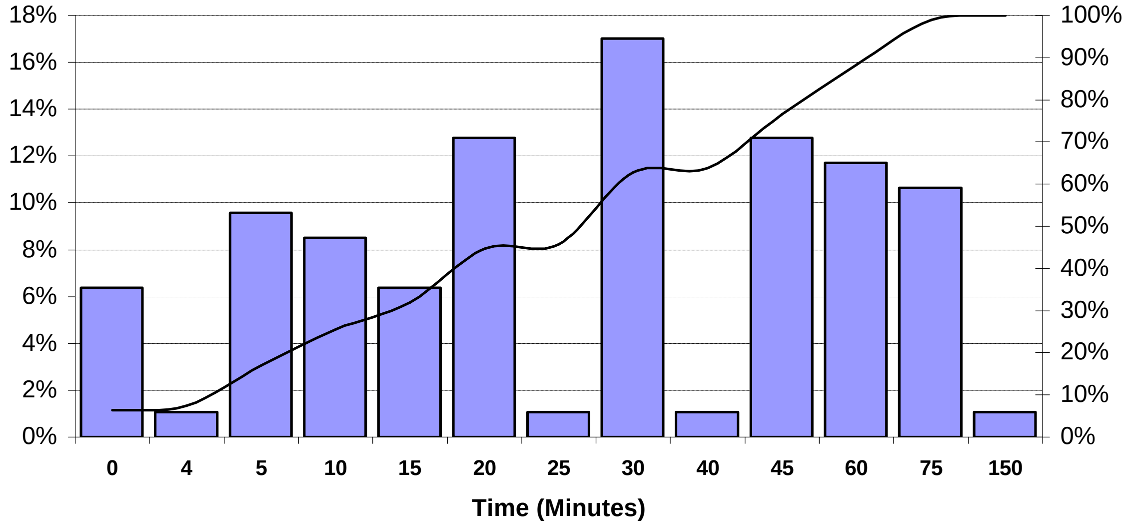


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	6	6.4%	6.4%
4	1	1.1%	7.4%
5	9	9.6%	17.0%
10	8	8.5%	25.5%
15	6	6.4%	31.9%
20	12	12.8%	44.7%
25	1	1.1%	45.7%
30	16	17.0%	62.8%
40	1	1.1%	63.8%
45	12	12.8%	76.6%
60	11	11.7%	88.3%
75	10	10.6%	98.9%
150	1	1.1%	100.0%
Total	94	100.0%	

Number of missing values = 0

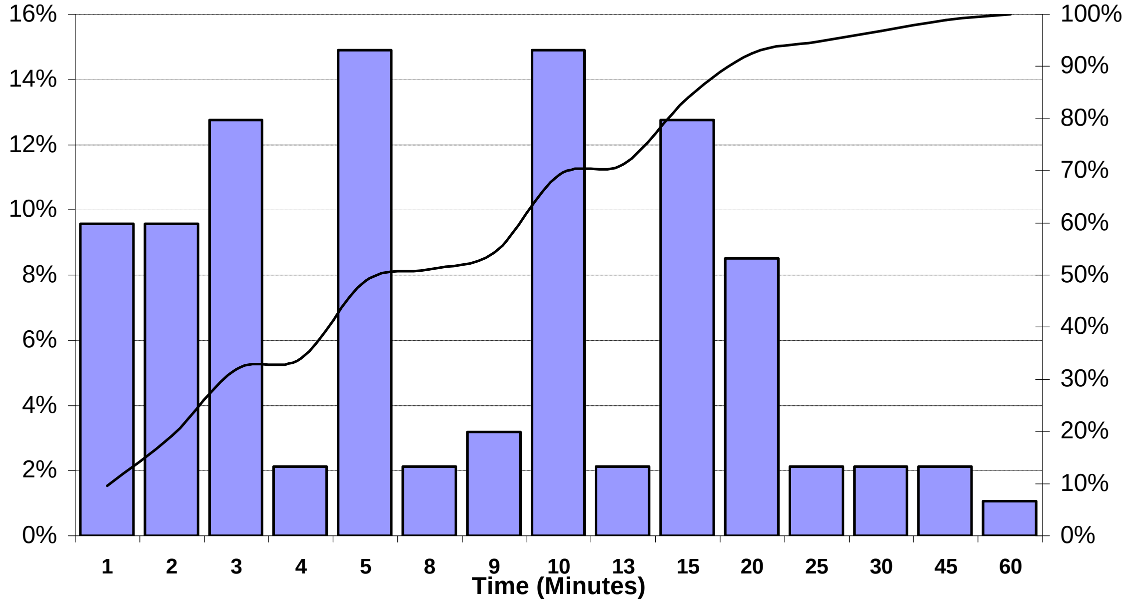


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	9	9.6%	9.6%
2	9	9.6%	19.1%
3	12	12.8%	31.9%
4	2	2.1%	34.0%
5	14	14.9%	48.9%
8	2	2.1%	51.1%
9	3	3.2%	54.3%
10	14	14.9%	69.1%
13	2	2.1%	71.3%
15	12	12.8%	84.0%
20	8	8.5%	92.6%
25	2	2.1%	94.7%
30	2	2.1%	96.8%
45	2	2.1%	98.9%
60	1	1.1%	100.0%
Total	94	100.0%	

Number of missing values = 0



Attachment 2: COMPARISON OF PAEDIATRIC AND THORACIC MEDICINE INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x PT/OTE
	ID	Priv/Pub/ Day Surg	Definition of Time		PT	OTE	
OPERATION TIME (OPT)*	H1	Priv	Op Start to Op End	3	21.7	14.8	146.5
	H4	Priv	Op Start to Op End	3	21.7	29.7	72.9
	H6	Priv	Op Start to Op End	0			
	H8	Priv	Surgeon Start to Drapes Removed	2	32.5	25.0	130.0
	H9A	Priv	Inpatient, Surgery Start to Surgery Finish	2	17.5	45.5	38.5
	H9B	Day	Day Surgery, Surgery Start to Surgery Finish	3	33.3	16.1	207.2
	H10	Priv	Op Start to Op End	0			
	H11	Priv	Knife to Skin - Application of Dressing	1	30.0	27.0	111.1
	H13	Priv	Surgeon Start to Surgeon Finish	0			
	H15	Priv	Op Start to Op End	4	27.5	19.6	140.4
	H16	Pub	Proc Start to Proc End	4	35.0	25.9	135.1
	H17	Pub	Surgical Start to Surgical End	1	10.0	39.0	25.6
	H18	Priv	Proc Start to Proc End	4	32.5	27.5	118.3
	H19	Pub	Positioning to Dressings Applied	4	35.0	14.7	237.8
	APHA	Priv	Procedure Time	8	27.5	33.9	81.1
	Deloitte	Pub & Priv	Procedure Time	2	20.0	20.0	100.0
OPERATION TIME 2 (OPT 2)	H8	Priv	Surgeon Start to Xfer from OR	2	32.5	30.0	108.3
	H13	Priv	Surgeon Start to Xfer from OR	0			
	H15	Priv	Op Start to Recovery Admission	4	27.5	21.3	129.4
	H16	Pub	Proc Start to Recovery Admission	4	35.0	29.5	118.7
	H17	Pub	Surgical Start to Xfer from OR	1	10.0	41.0	24.4
	H18	Priv	Proc Start to Xfer from OR	5	29.0	29.6	98.0
	H19	Pub	Positioning to Ex Theatre	3	31.7	19.5	162.8
ANAESTHETIC TIME (OAT)	MBS	Pub & Priv	Anaesthetic Time	11	31.8	46.4	68.6
	H1	Priv	Anaesthetic Start to Op End	3	21.7	17.7	122.4
	H4	Priv	Anaesthetic Start to Op End	3	21.7	40.2	53.9
	H5	Priv	Anaesthetic Start to Surgery End	1	25.0	25.0	100.0
	H6	Priv	Anaesthetic Start to Op End	0			
	H8	Priv	Patient in Theatre to Drapes Removed	2	32.5	32.5	100.0
	H9A	Priv	Inpatient in A. Bay to Surgery Finish	1	10.0	48.0	20.8
	H9B	Day	Day Surgery, Anaesthetist Start to Surgery Finish	3	33.3	24.4	136.4
	H10	Priv	Anaesthetic Start to Op End	0			
	H13	Priv	Anaesthetic Start to Surgeon End	0			
	H15	Priv	Anaesthetic Start to Op End	4	27.5	22.3	123.2
	H16	Pub	Anaesthetic Start to Proc End	4	35.0	34.2	102.5
	H17	Pub	Anaesthetic Start to Surgical End	0			
	H18	Priv	Anaesthetic Start to Proc End	5	29.0	27.4	105.8
	H19	Pub	Anaesthetic Start to Dressings Applied	5	30.0	24.6	121.9
	Deloitte	Pub & Priv	Anaesthetic Time	2	20.0	25.0	80.0
ANAESTHETIC TIME 2 (OAT 2)	H8	Priv	Patient in Theatre to Xfer from OR	2	32.5	37.5	86.7
	H11	Priv	Anaesthetic Start to Xfer to Recovery	2	25.0	31.0	80.7
	H12	Pub	Anaesthetic Start to Xfer to Recovery	0			
	H13	Priv	Anaesthetic Start to Xfer from OR	0			
	H14	Pub	Anaesthetic Start to Recovery Admission	9	25.0	56.0	44.6
	H15	Priv	Anaesthetic Start to Recovery Admission	4	27.5	24.0	114.8
	H16	Pub	Anaesthetic Start to Recovery Admission	4	35.0	37.8	92.6
	H17	Pub	Anaesthetic Start to Xfer from OR	0			
	H18	Priv	Anaesthetic Start to Xfer from OR	5	29.0	33.6	86.3
	H19	Pub	Anaesthetic Start to Ex Theatre	6	35.0	31.2	112.3
TIME IN THEATRE (THT)	H2	Priv	Total Time in Theatre	5	25.0	28.2	88.7
	H3	Priv	Total Time in Theatre	0			
	H7	Day	Total Time in Theatre	2	37.5	22.1	169.9
	H11	Priv	Dress, scrub etc. to Xfer to Recovery	2	25.0	45.5	55.0
	H15	Priv	Theatre Reception to Recovery Admission	4	27.5	33.5	82.2
	H19	Pub	In Op Suite to Ex Theatre	6	35.0	45.2	77.5
	C'mix Pub	Pub	Casemix Public Theatre Time	11	36.4	29.0	125.6
	C'mix Priv	Priv	Casemix Private Theatre Time	12	27.5	23.3	117.9
	C'mix Other	Day & Other	Casemix Other Theatre Time	6	24.2	17.6	137.1
	WA	Priv	WA Group Total Time in Theatre	11	25.9	25.9	100.0

* Median ratio of PT intra time estimates to OPT
Unweighted = 118.3 %
Weighted (for number of items in common) = 118.3 %

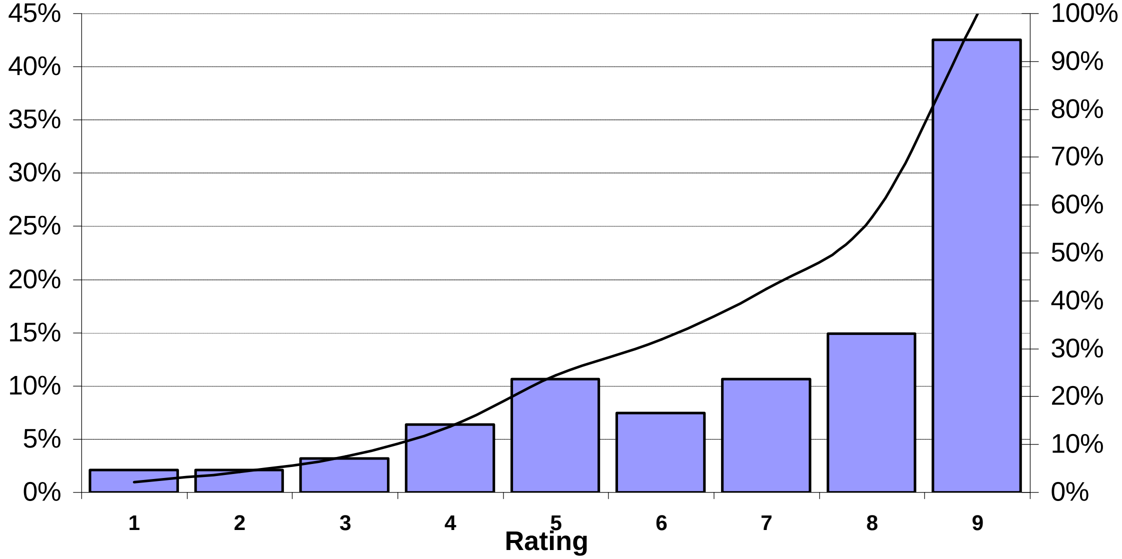
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
2	2	2.1%	2.1%
3	2	2.1%	4.3%
4	3	3.2%	7.4%
5	6	6.4%	13.8%
6	10	10.6%	24.5%
7	7	7.4%	31.9%
8	10	10.6%	42.6%
9	14	14.9%	57.4%
10	40	42.6%	100.0%
Total	94	100.0%	

Number of missing values = 0

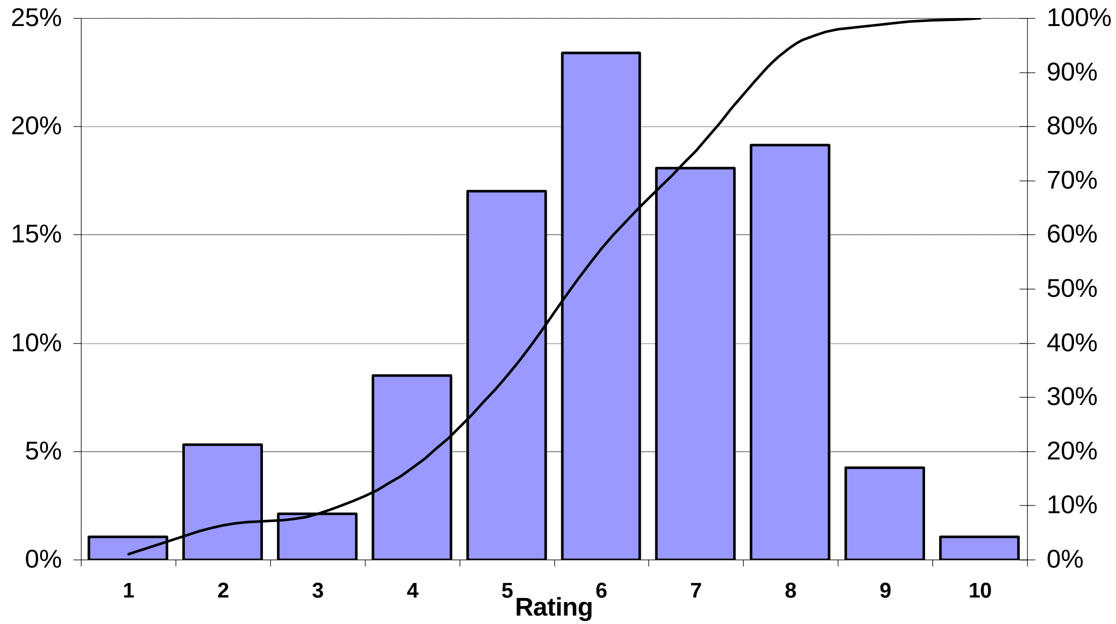


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
1	1	1.1%	1.1%
2	5	5.3%	6.4%
3	2	2.1%	8.5%
4	8	8.5%	17.0%
5	16	17.0%	34.0%
6	22	23.4%	57.4%
7	17	18.1%	75.5%
8	18	19.1%	94.7%
9	4	4.3%	98.9%
10	1	1.1%	100.0%
Total	94	100.0%	

Number of missing values = 0

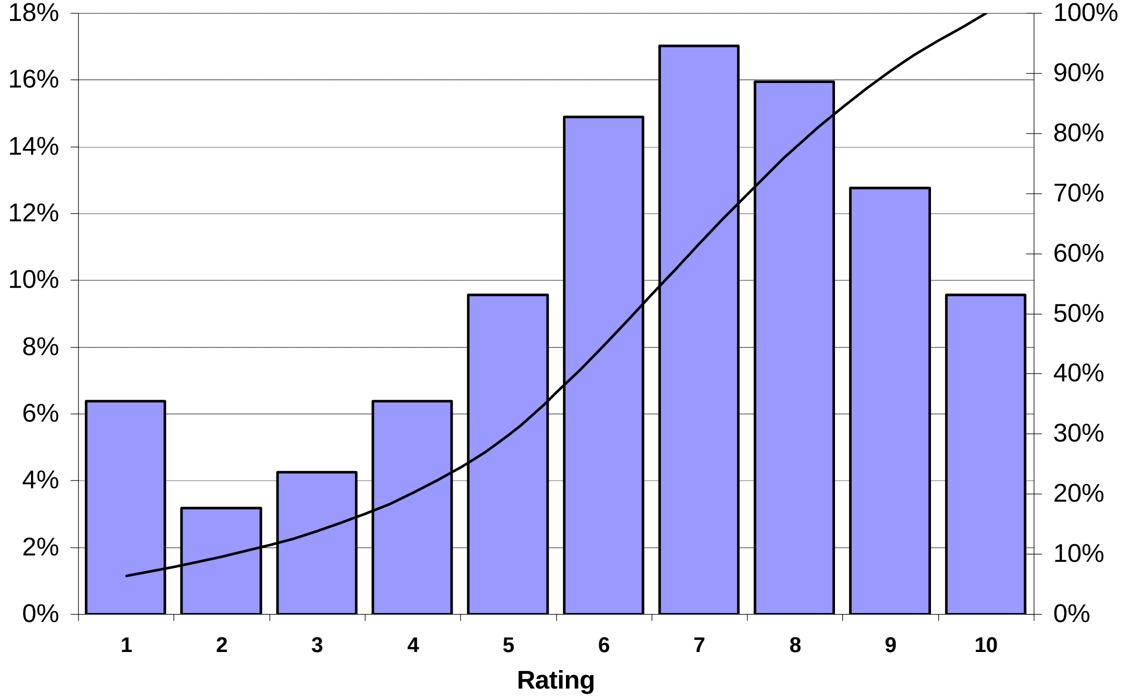


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
1	6	6.4%	6.4%
2	3	3.2%	9.6%
3	4	4.3%	13.8%
4	6	6.4%	20.2%
5	9	9.6%	29.8%
6	14	14.9%	44.7%
7	16	17.0%	61.7%
8	15	16.0%	77.7%
9	12	12.8%	90.4%
10	9	9.6%	100.0%
Total	94	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Paediatric and Thoracic Medicine and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	11	0	11
Facio-max Surgery	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	0	0	0
Cardio Thoracic Surgery	5	0	5
Neurosurgery	1	23	24
Orthopaedic surgery	0	63	63
Paediatric Surgery	1	0	1
Plastic Surgery	0	11	11
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	0	0	0
ENT	2	0	2
Anaesthesia	2	63	65
Dermatology	0	0	0
General Medicine	10	46	56
Cardiology, Renal, ICU	2	0	2
Radiation, Oncology	0	0	0
Gastroenterology	0	0	0
Neurology	0	63	63
Haematology, Medical Oncology	2	0	2
Psychiatry	0	53	53
Total	22	63	85

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Endocrinology, General Medicine, Geriatrics, Immunology, Infectious Diseases, Nuclear Medicine, Occupational Medicine, Rehabilitation Medicine and Rheumatology

Summary Status Report

October 8, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Extended General Medicine Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 117 items. These comprised 71 procedure items and 46 consultation items.

Analysis of this information showed:

- The median ratio of the Consensus Group's intra time estimates to NCCH's Theatre Times Database observed procedure times was 79.5%. This shows a tendency to under estimate intra times,

- The group gave very much higher ranks to consultation items than to procedure items, significantly higher ranks to link items than to non-link items and significantly lower ranks to good map items than to poor/no-map items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 6.23. Although this is higher than the median observed for specialties so far examined, in terms of deviations in rates of pay, it should still be possible to align Extended General Medicine's rankings and ratings with those of the other groups.

- The consultation items were given much higher imputed relative values[1] than the procedure items, the link items were given significantly greater imputed relative values than the non-link items and good map items were given significantly lower imputed relative values than poor/no-map items.

- The correlation between the imputed relative values for Extended General Medicine and both the Medicare Benefits Schedule Fee and CPT RV were much lower than anticipated (R^2 = 8% and R^2 = 51% respectively).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Extended General Medicine are set out in Table 2.1 together with associated standard deviations and ranges.

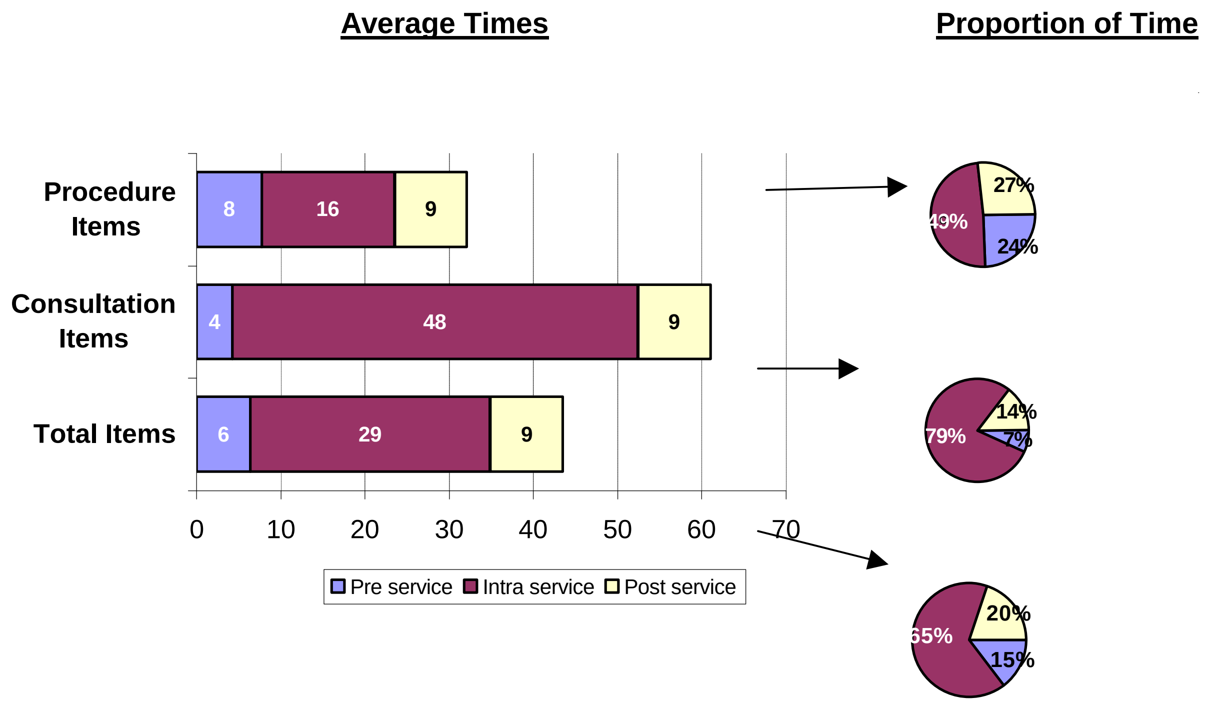
The mean intra service time was 29 minutes and the mean total time was 44 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	6	29	9	44
SD	5	22	6	25
Min	0	0	0	4
Max	20	75	30	105

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	7.7	15.8	8.6	32.1
Consultation Items	4.3	48.1	8.7	61.1
Total Items	6.4	28.5	8.6	43.5

Extended General Medicine's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Extended General Medicine's intra time estimates to the observed procedure times was 79.5%. This shows a tendency by this Consensus Group to under estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Extended General Medicine are set out in Table 3.1 together with associated standard deviations and ranges.

The mean ratings were 7.0 for cognitive skill, 6.6 for technical skill and 4.5 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

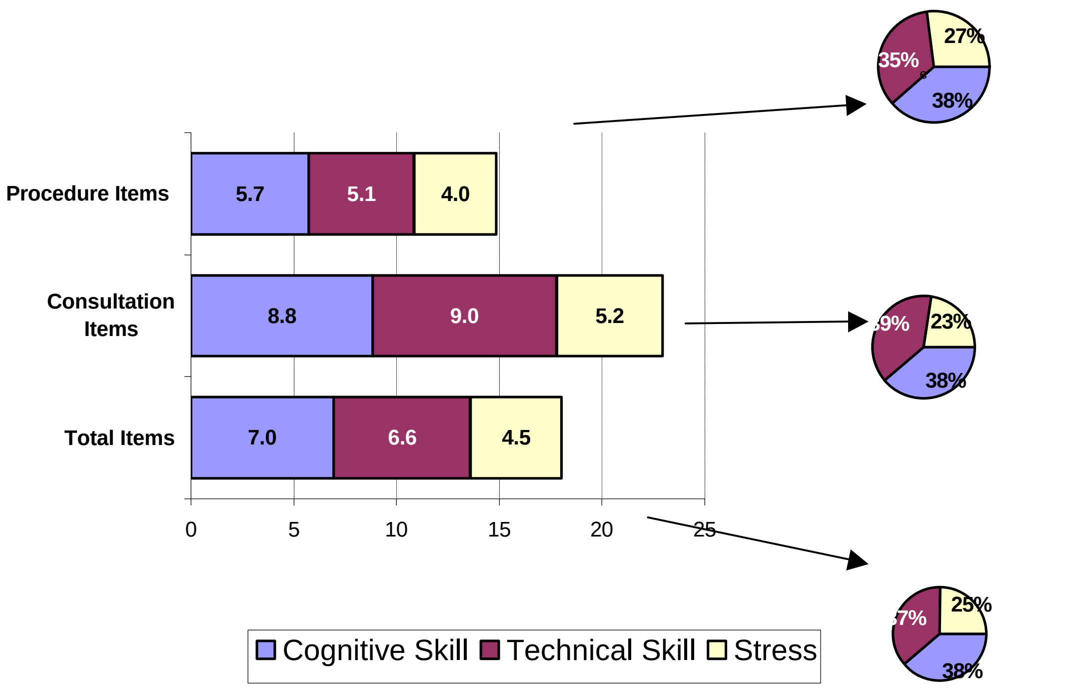
Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	7.0	6.6	4.5	18.1
SD	2.0	2.4	2.2	5.7
Min	0.5	0.0	0.5	4.0
Max	9.0	9.2	9.0	25.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

<u>Figure 3.1</u>

<u>Average Intensities</u> **<u>Proportion of Intensity</u>**



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	5.7	5.1	4.0	14.8
Consultation Items	8.8	9.0	5.2	23.0
Total Items	7.0	6.6	4.5	18.1

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills

b) Technical Skill = Technical Skill and Physical Effort

c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (that is time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The consultation items were given very much higher ranks than the procedure items (sum of ranks test, p < 0.001).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	71	10	117	78.42
Consultation	46	1	84	29.02
Total	117	1	117	59.00

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Extended General Medicine Consensus Group assessed 92 link items. These comprised all 46 of their consultation items and 46 of the 71 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were significantly higher than those given to non-link items (sum of ranks test, p < 0.01).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation-Link	46	1	84	29.02
Procedure-Link	46	10	117	78.35
Total Link	92	1	117	53.68
Non-Link (Procedure)	25	36	114	78.56
Total	117	1	117	59.00

Good maps of Extended General Medicine's items to CPT were available for 13 of their 117 items. A breakdown of the ranks given to these good map items and to the poor/no-map items is set out in Table 4.3. The ranks given to the good map items were significantly lower than those given to the poor/no-map items (sum of ranks test, $p < 0.01$). This means that good map items (i.e. potential core items) are not spread evenly throughout the ranks.

Type of Item	**Number Reviewed**	**Ranking**		
		Highest	**Lowest**	**Average**
Good Map	13	45	117	82.7
	104	1	116	56.0
Total	117	1	117	59.0

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Extended General Medicine is 1 to 78.4.

By dividing imputed relative values by time we can imputerelative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre intra: post) the range in relative rates of pay is 1 to 5.06. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 6.23.

These ranges in relative rates of pay are higher than the median observed for specialties examined so far[3]. However, in terms of deviations in rates of pay, it should still be possible to align Extended General Medicine's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between Consultation and Procedure Items, between Link Items and Non-link Items and between Good Map Items and Poor/No Map Items in terms of imputed relative value (IRV) are set out in Table 5.1.

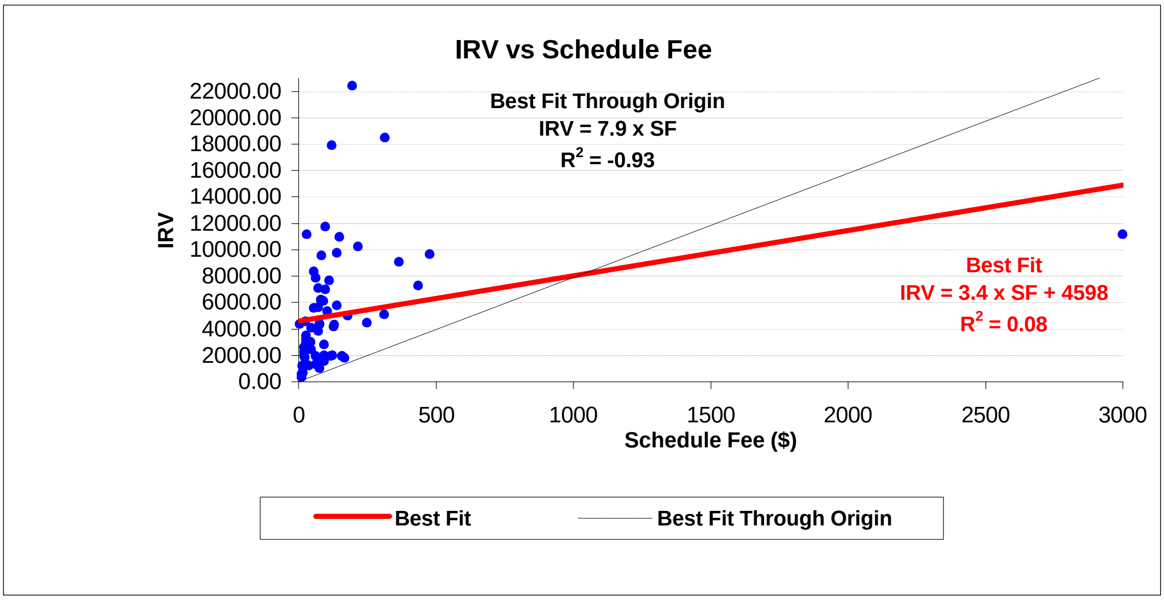
The consultation items were given much greater imputed relative values than the procedure items (t tests, $p < 0.001$). The link items were given significantly greater imputed relative values than the non-link items (t tests, $p < 0.01$), and good map items were given significantly lower imputed relative values than poor/no-map items (t tests, $p < 0.01$).

Type of Item	Number Reviewed	IRVs Mean ± SD			
		Mean	± SD	Low	High
Consultation	46	15775	± 6305	4077	26202
Procedure	71	5082	± 4283	334	22440
Link	92	10501	± 7678	334	26202
Non-link	25	4814	± 3320	1008	11160
Good Map	13	4328	± 3060	334	9765
Poor/No Map	104	9906	± 7499	576	26202
Total	117	9286	± 7349	334	26202

A plot of Extended General Medicine's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). Two attempts to fit the data are also shown. The line of "Best Fit" explains only 8% of the variation in imputed relative values while the line of "Best Fit Through the Origin" fails to explain any of the variation.

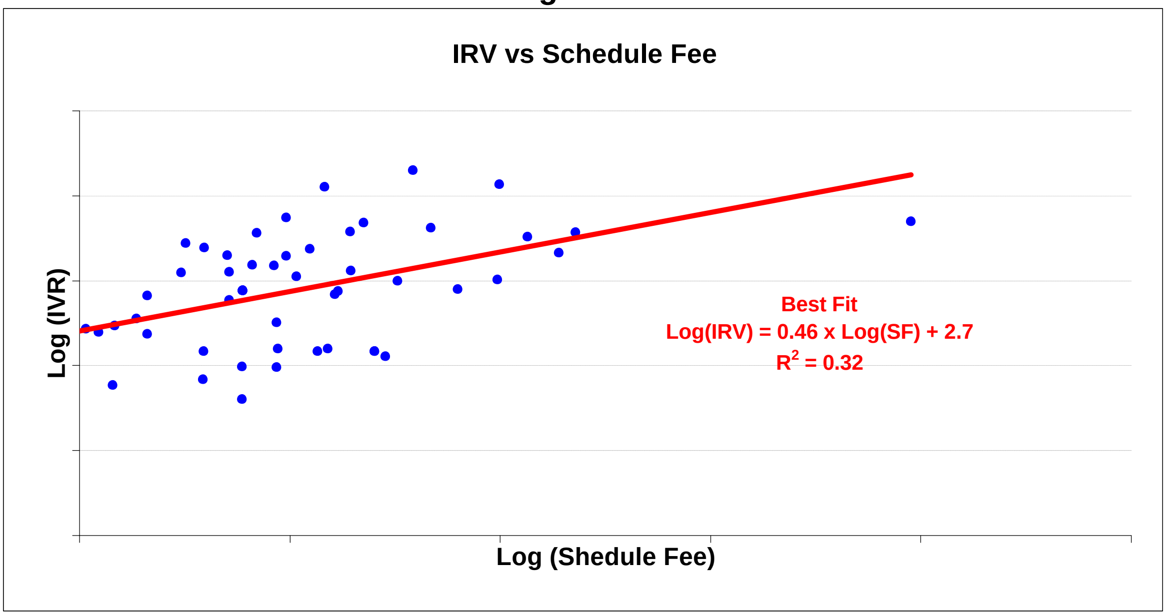
It must be acknowledged that comparisons of Extended General Medicine's imputed relative values against schedule fee may not be appropriate. Many of their procedures have significant material components (e.g. MBS Item 16015).

Figure 5.1



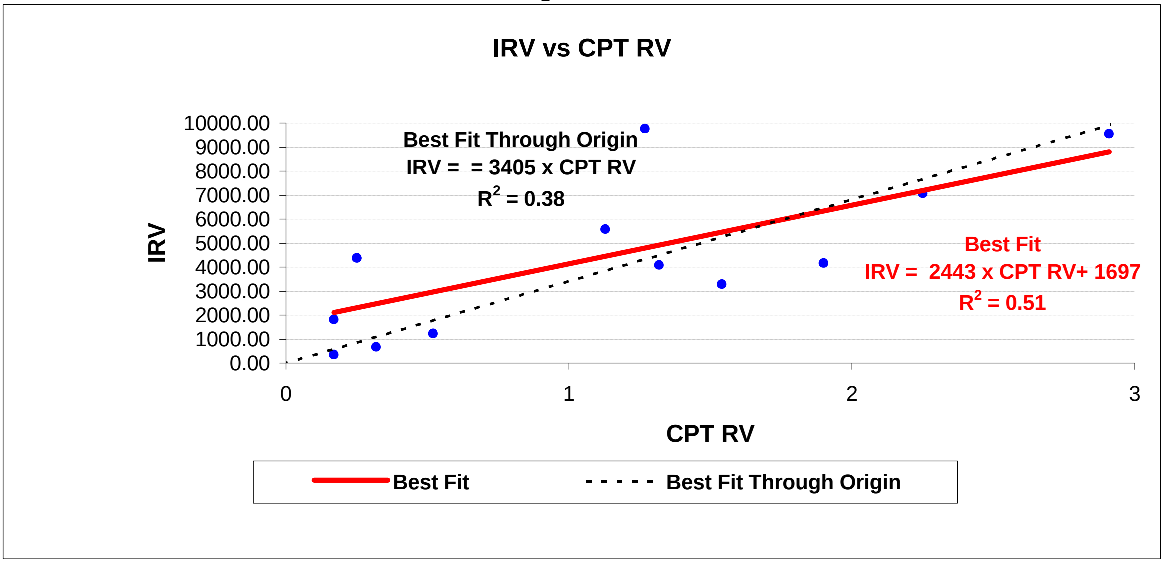
We might also expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit, while still poor, is better than that for IRV against Schedule Fee, explaining 32% of the variation as against 8% previously.

Figure 5.2



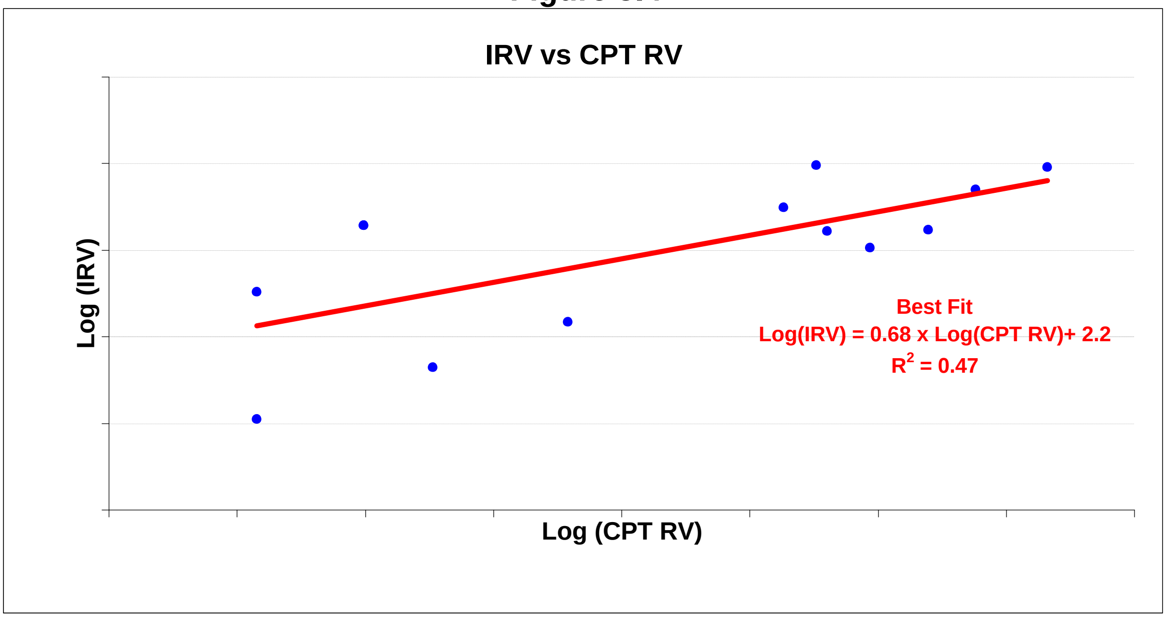
A plot of Extended General Medicine's IRVs against CPT RV is set out in Figure 5.3. The fit is poor (R^2 = 51%). The clear outlier is MBS Item 30094 and when this is removed, R^2 improves to 65%.

Figure 5.3



As for Schedule Fee, we might expect the magnitude of error deviation to increase with CPT RV. Accordingly, a log/log plot is also provided (Figure 5.4). The fit is not as good as that for IRV against CPT RV explaining 47% of the variation as against 51%.

Figure 5.4



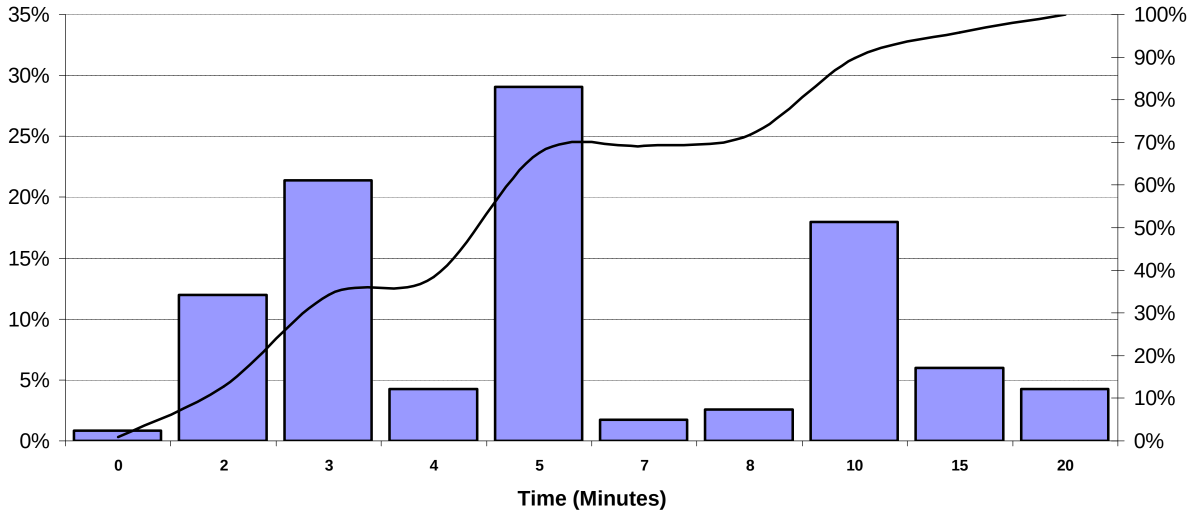
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	0.9%	0.9%
2	14	12.0%	12.8%
3	25	21.4%	34.2%
4	5	4.3%	38.5%
5	34	29.1%	67.5%
7	2	1.7%	69.2%
8	3	2.6%	71.8%
10	21	17.9%	89.7%
15	7	6.0%	95.7%
20	5	4.3%	100.0%
Total	117	100.0%	

Number of missing values = 0

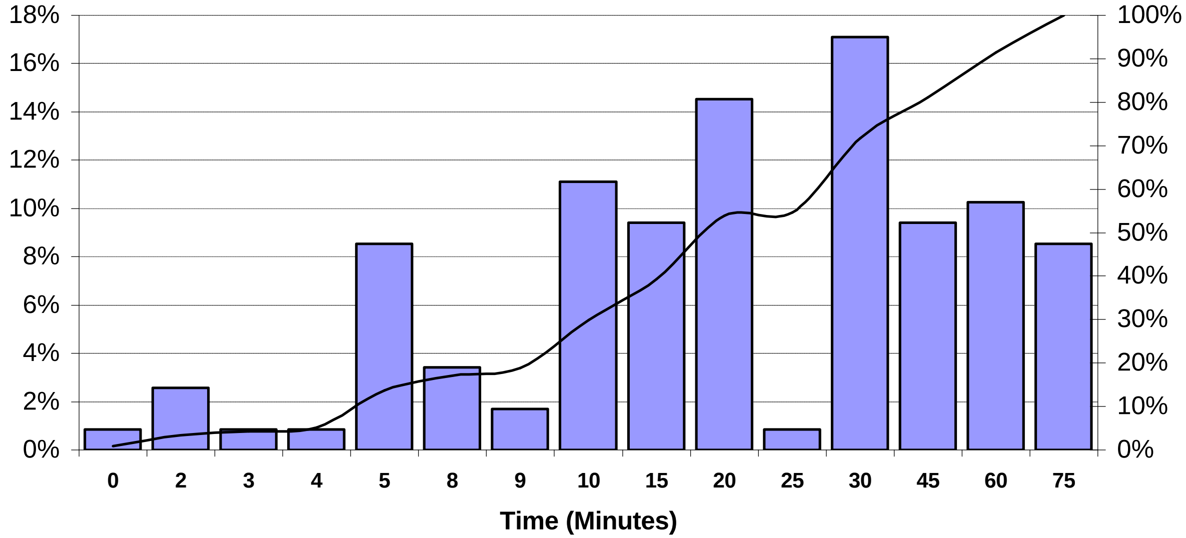


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	0.9%	0.9%
2	3	2.6%	3.4%
3	1	0.9%	4.3%
4	1	0.9%	5.1%
5	10	8.5%	13.7%
8	4	3.4%	17.1%
9	2	1.7%	18.8%
10	13	11.1%	29.9%
15	11	9.4%	39.3%
20	17	14.5%	53.8%
25	3	0.9%	54.7%
30	20	17.1%	71.8%
45	4	9.4%	81.2%
60	12	10.3%	91.5%
75	6	8.5%	100.0%
Total	117	100.0%	

Number of missing values = 0

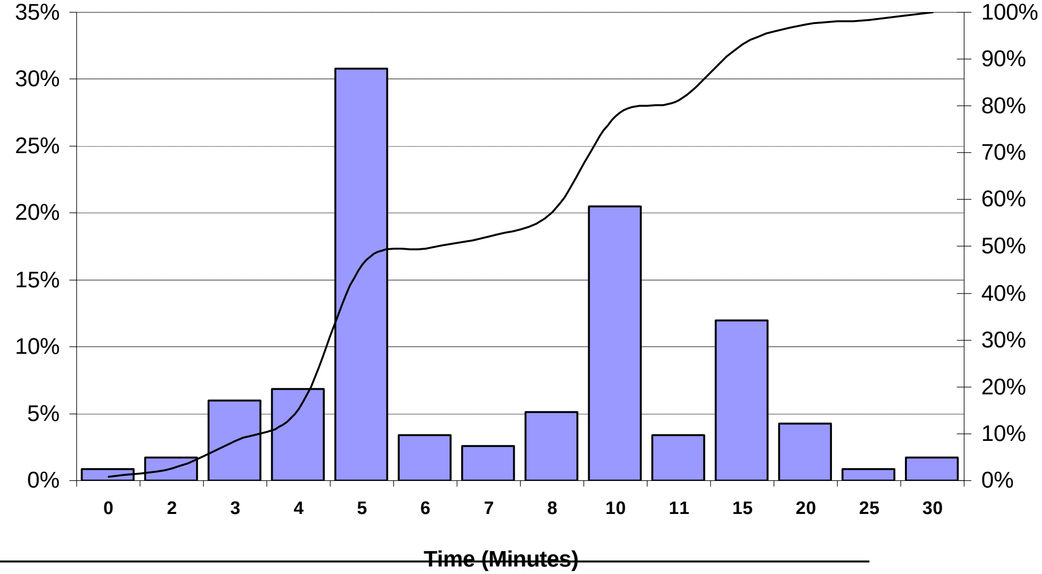


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	0.9%	0.9%
2	2	1.7%	2.6%
3	7	6.0%	8.5%
4	8	6.8%	15.4%
5	36	30.8%	46.2%
6	4	3.4%	49.6%
7	3	2.6%	52.1%
8	6	5.1%	57.3%
10	24	20.5%	77.8%
11	4	3.4%	81.2%
15	14	12.0%	93.2%
20	5	4.3%	97.4%
25	1	0.9%	98.3%
30	2	1.7%	100.0%
Total	117	100.0%	

Number of missing values = 0



Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x GENMED /OTE
	ID	Type	Definition of Time		GENMED	OTE	
OPERATION TIME (OPT)*	H1	Priv	Op Start to Op End	5	14.0	14.3	97.6
	H4	Priv	Op Start to Op End	4	15.0	15.2	98.6
	H6	Priv	Op Start to Op End	1	10.0	20.0	50.0
	H8	Priv	Surgeon Start to Drapes Removed	5	15.0	16.1	93.2
	H9A	Priv	Inpatient, Surgery Start to Surgery Finish	9	17.6	27.1	64.9
	H9B	Day	Day Surgery, Surgery Start to Surgery Finish	4	13.8	12.0	114.4
	H10	Priv	Op Start to Op End	4	23.8	19.1	124.1
	H11	Priv	Knife to Skin - Application of Dressing	5	17.0	28.6	59.4
	H13	Priv	Surgeon Start to Surgeon Finish	3	30.0	28.7	104.5
	H15	Priv	Op Start to Op End	10	20.0	24.0	83.2
	H16	Pub	Proc Start to Proc End	8	20.0	25.1	79.8
	H17	Pub	Surgical Start to Surgical End	7	14.3	26.6	53.7
	H18	Priv	Proc Start to Proc End	11	19.6	15.8	123.7
	H19	Pub	Positioning to Dressings Applied	8	13.8	17.4	79.1
	H20	Pub	Preparation/Positioning to End Dressings	13	16.2	22.5	71.9
	APHA	Priv	Procedure Time	5	16.0	28.4	56.3
	CANS	Pub & Priv	Op Start to Op Finish	6	13.3	19.9	67.1
	Deloitte	Pub & Priv	Procedure Time	7	14.3	22.9	62.5
OPERATION TIME 2 (OPT 2)	H8	Priv	Surgeon Start to Xfer from OR	6	14.2	16.4	86.5
	H13	Priv	Surgeon Start to Xfer from OR	4	27.5	33.6	81.8
	H15	Priv	Op Start to Recovery Admission	10	20.0	26.4	75.8
	H16	Pub	Proc Start to Recovery Admission	8	20.0	29.1	68.8
	H17	Pub	Surgical Start to Xfer from OR	8	14.4	30.6	47.0
	H18	Priv	Proc Start to Xfer from OR	11	18.6	15.6	119.3
	H19	Pub	Positioning to Ex Theatre	8	13.8	22.5	61.2
	H20	Pub	Preparation/Positioning to Admit Recovery/ICU	13	16.2	28.2	57.4
	CANS	Pub & Priv	Operation Start to Anaesthetist Finish	6	13.3	23.1	57.6
ANAESTHETIC TIME (OAT)	MBS	Pub & Priv	Anaesthetic Time	19	22.1	26.1	84.9
	H1	Priv	Anaesthetic Start to Op End	5	14.0	19.3	72.5
	H4	Priv	Anaesthetic Start to Op End	6	13.3	21.3	62.7
	H5	Priv	Anaesthetic Start to Surgery End	2	10.0	21.5	46.5
	H6	Priv	Anaesthetic Start to Op End	1	10.0	25.0	40.0
	H8	Priv	Patient in Theatre to Drapes Removed	5	15.0	20.0	74.9
	H9A	Priv	Inpatient in A. Bay to Surgery Finish	9	17.6	29.8	58.9
	H9B	Day	Day Surgery, Anaesthetist Start to Surgery Finish	5	14.0	20.9	67.1
	H10	Priv	Anaesthetic Start to Op End	4	23.8	23.7	100.1
	H13	Priv	Anaesthetic Start to Surgeon End	4	27.5	34.9	78.7
	H15	Priv	Anaesthetic Start to Op End	10	20.0	26.7	74.9
	H16	Pub	Anaesthetic Start to Proc End	9	19.4	35.8	54.3
	H17	Pub	Anaesthetic Start to Surgical End	6	14.2	38.4	36.9
	H18	Priv	Anaesthetic Start to Proc End	11	19.6	18.4	106.0
	H19	Pub	Anaesthetic Start to Dressings Applied	9	13.9	24.7	56.2
	H20	Pub	Anaesthetist Start to End Dressings	12	15.0	31.7	47.3
	CANS	Pub & Priv	Anaesthetist Start to Operation Finish	6	13.3	23.1	57.8
	Deloitte	Pub & Priv	Anaesthetic Time	6	13.3	22.0	60.6
ANAESTHETIC TIME 2 (OAT 2)	H8	Priv	Patient in Theatre to Xfer from OR	5	15.0	22.2	67.6
	H11	Priv	Anaesthetic Start to Xfer to Recovery	6	16.7	36.2	46.1
	H12	Pub	Anaesthetic Start to Xfer to Recovery	2	17.5	28.9	60.6
	H13	Priv	Anaesthetic Start to Xfer from OR	4	27.5	38.6	71.2
	H14	Pub	Anaesthetic Start to Recovery Admission	13	18.7	41.5	45.0
	H15	Priv	Anaesthetic Start to Recovery Admission	10	20.0	29.1	68.7
	H16	Pub	Anaesthetic Start to Recovery Admission	8	20.0	37.5	53.4
	H17	Pub	Anaesthetic Start to Xfer from OR	6	14.2	44.8	31.7
	H18	Priv	Anaesthetic Start to Xfer from OR	10	15.5	21.4	72.4
	H19	Pub	Anaesthetic Start to Ex Theatre	9	13.9	31.2	44.6
	H20	Pub	Anaesthetist Start to Admit Recovery/ICU	12	15.0	38.1	39.4
	CANS	Pub & Priv	Anaesthetist Start to Anaesthetist Finish	6	13.3	26.3	50.6
TIME IN THEATRE (THT)	H2	Priv	Total Time in Theatre	10	20.5	28.2	72.8
	H3	Priv	Total Time in Theatre	1	15.0	10.8	139.5
	H7	Day	Total Time in Theatre	5	13.0	12.6	102.9
	H11	Priv	Dress, scrub etc. to Xfer to Recovery	6	16.7	51.3	32.5
	H15	Priv	Theatre Reception to Recovery Admission	10	20.0	39.9	50.1
	H19	Pub	In Op Suite to Ex Theatre	9	13.9	46.9	29.6
	C'mix Pub	Pub	Casemix Public Theatre Time	17	16.7	40.7	41.0
	C'mix Priv	Priv	Casemix Private Theatre Time	19	16.5	20.6	80.2
	C'mix Other	Day & Other	Casemix Other Theatre Time	7	17.1	16.4	104.7
	WA	Priv	WA Group Total Time in Theatre	16	17.2	21.6	79.7

* **Median ratio of GENMED intra time estimates to OPT (excluding H4, H6, H9A, H9B and H11)**
Unweighted = 79.8 %
Weighted (for number of items in common) = 79.5 %

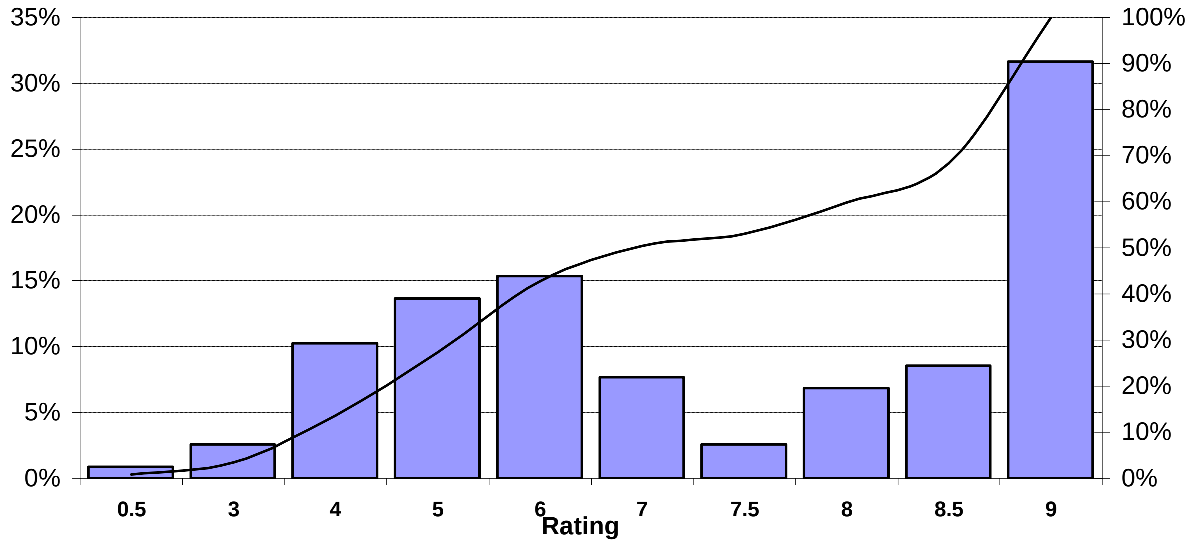
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
0.5	1	0.9%	0.9%
3	3	2.6%	3.4%
4	12	10.3%	13.7%
5	16	13.7%	27.4%
6	18	15.4%	42.7%
7	9	7.7%	50.4%
7.5	3	2.6%	53.0%
8	8	6.8%	59.8%
8.5	10	8.5%	68.4%
9	37	31.6%	100.0%
Total	117	100.0%	

Number of missing values = 0

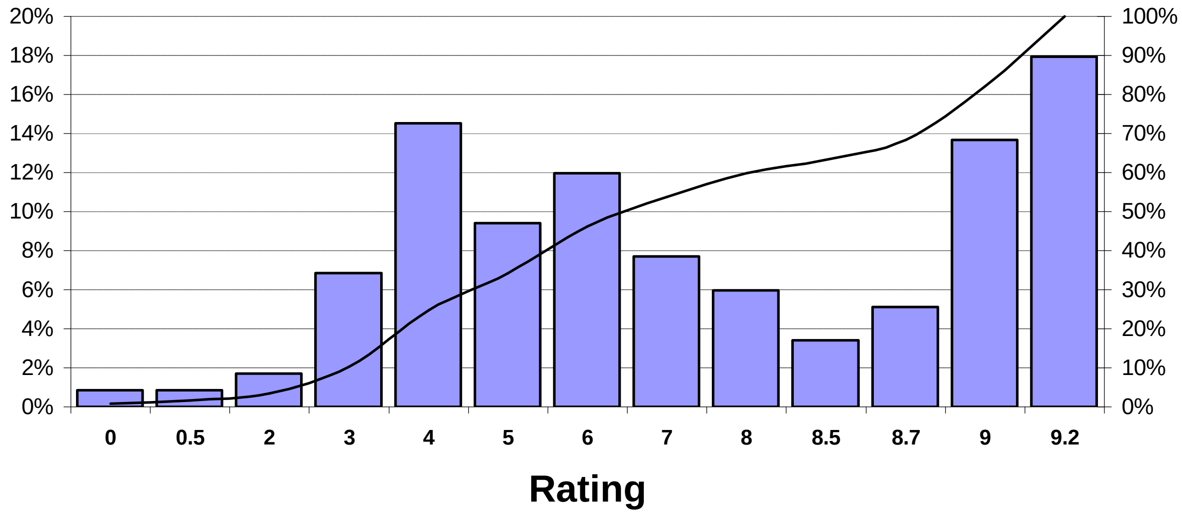


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
0	1	0.9%	0.9%
0.5	1	0.9%	1.7%
2	2	1.7%	3.4%
3	8	6.8%	10.3%
4	17	14.5%	24.8%
5	11	9.4%	34.2%
6	14	12.0%	46.2%
7	9	7.7%	53.8%
8	7	6.0%	59.8%
8.5	4	3.4%	63.2%
8.7	6	5.1%	68.4%
9	16	13.7%	82.1%
9.2	21	17.9%	100.0%
Total	117	100.0%	

Number of missing values = 0

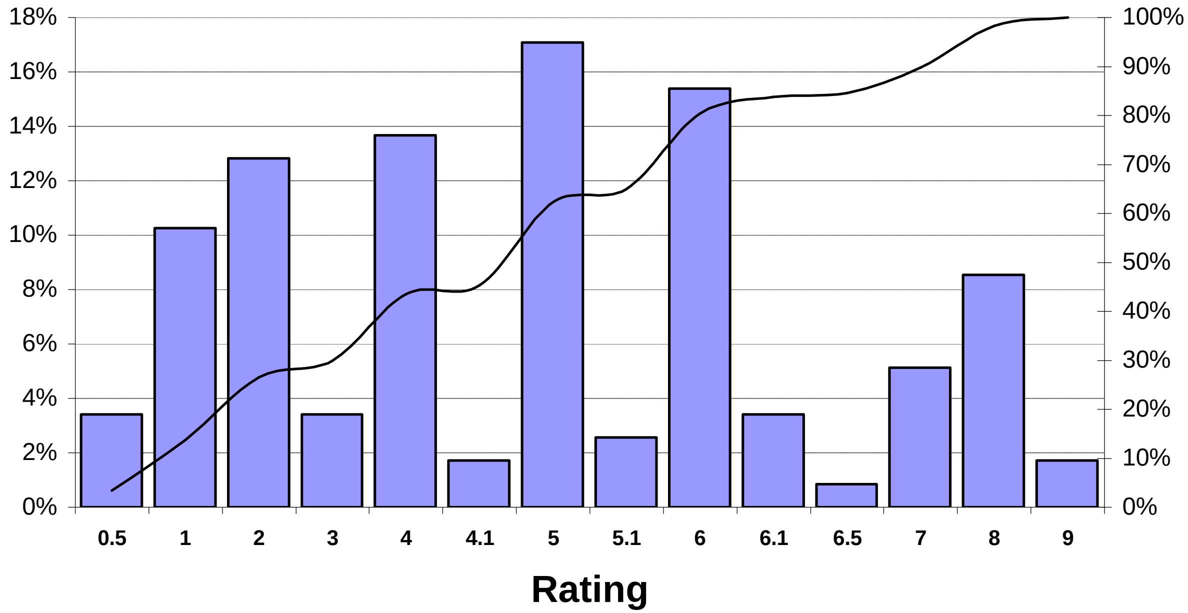


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
0.5	4	3.4%	3.4%
1	12	10.3%	13.7%
2	15	12.8%	26.5%
3	4	3.4%	29.9%
4	16	13.7%	43.6%
4.1	2	1.7%	45.3%
5	20	17.1%	62.4%
5.1	3	2.6%	65.0%
6	18	15.4%	80.3%
6.1	4	3.4%	83.8%
6.5	1	0.9%	84.6%
7	6	5.1%	89.7%
8	10	8.5%	98.3%
9	2	1.7%	100.0%
Total	117	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Extended General Medicine and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	19	0	19
Oral and Maxillo-Facial Surgery	0	15	15
Obstetrics / Gynaecology	5	0	5
General Surgery	2	0	2
Cardio Thoracic Surgery	1	0	1
Neurosurgery	1	19	20
Orthopaedic Surgery	1	46	47
Paediatric Surgery	0	0	0
Plastic Surgery	0	10	10
Urology	4	0	4
Vascular Surgery	0	0	0
Ophthalmology	1	0	1
ENT	0	0	0
Anaesthesia	5	46	51
Dermatology	2	0	2
Paediatric / Thoracic Medicine	10	46	56
Cardiology, Renal, ICU	12	0	12
Radiation, Oncology	0	0	0
Gastroenterology	5	0	5
Neurology	1	46	47
Haematology, Medical Oncology	2	0	2
Psychiatry	0	46	46
Total	46	46	92

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Cardiology, Renal Medicine and ICU

Summary Status Report

November 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Cardiology, Renal Medicine and ICU Consensus Group.

The Cardiology, Renal Medicine and ICU Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 98 items. These comprised 73 procedure items and 25 consultation items.

Analysis of this information showed:

- The median ratio of Cardiology, Renal Medicine and ICU's intra time estimates to NCCH's Theatre Times Database observed procedure times was124.5%. This implies a tendency to over estimate intra times.

- The group gave significantly higher ranks to the procedure items than to the consultation items ($p < 0.05$).

- The ranks given to link items were much lower than those given to non-link items ($p < 0.001$).

- There was no bias in the ranking of potential core items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 5.0. This is slightly higher than the median observed for specialties so far examined. However, in terms of deviations in rates of pay, it should still be possible to align Cardiology, Renal Medicine and ICU's rankings and ratings with those of the other groups.

- Consultation items were given significantly lower imputed relative[1] values than procedure items.

- The link items were given very much lower imputed relative values than the non link items. The range in imputed relative values for link items lacks high values which could cause problems with alignment.

- There was no significant difference between the imputed relative values given to the good map items and those given to the poor/no map items.

- The correlation between the imputed relative values for Cardiology, Renal Medicine and ICU and schedule fee was strong (R^2 = 91%). CPT RV was also well correlated with IRV (R^2 = 88%). There seems to be a simple proportional relationship between IRV and CPT RV.

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Cardiology, Renal Medicine and ICU are set out in Table 2.1 together with associated standard deviations and ranges.

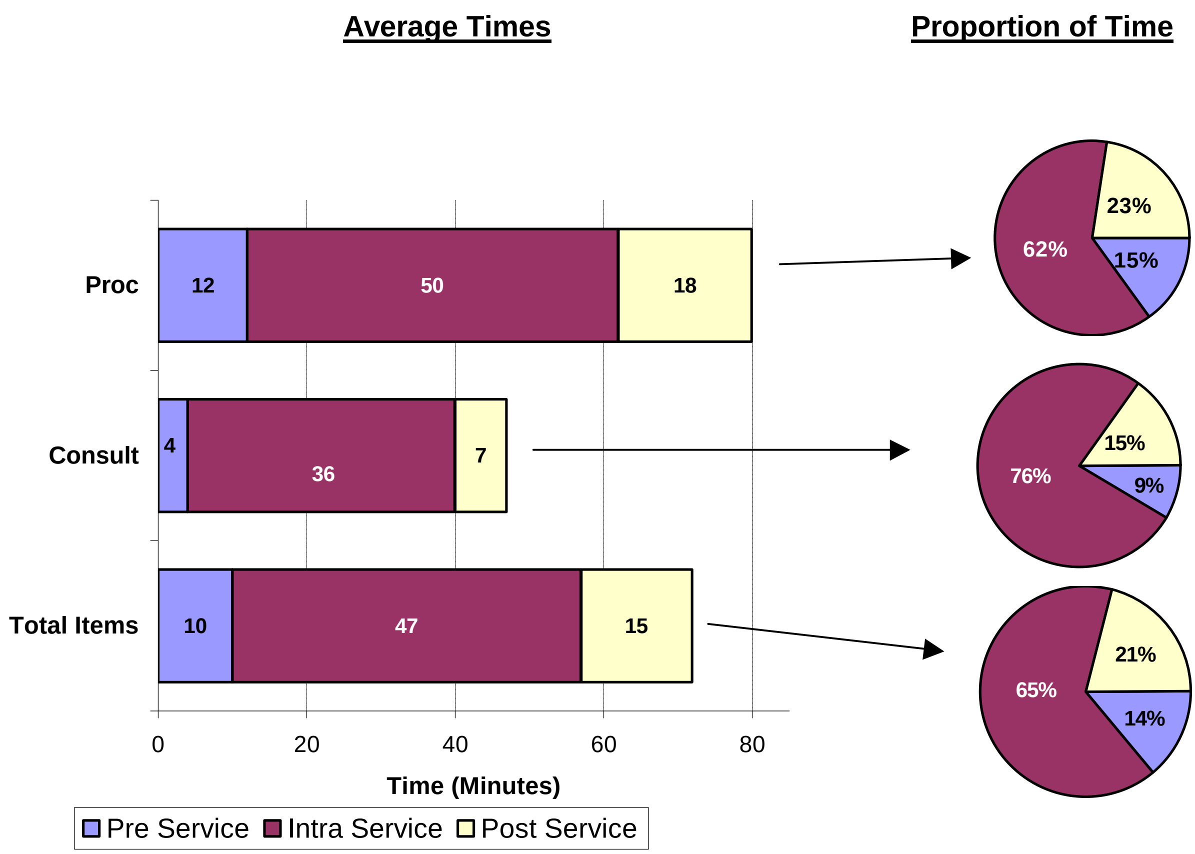
The mean intra service time was 47 minutes and the mean total time was 72 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	10	47	15	72
SD	7	42	11	51
Min	0	0	0	10
Max	30	200	75	250

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	12.2	50.3	18.0	80.5
Consultation Items	4.1	36.2	6.5	46.8
Total Items	10.2	46.7	15.1	72.0

Cardiology, Renal Medicine and ICU 's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Cardiology, Renal Medicine and ICU 's intra time estimates to the observed procedure times was 124.5%. This implies a tendency by this Consensus Group to over estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Cardiology, Renal Medicine and ICU are set out in Table 3.1 together with associated standard deviations and ranges.

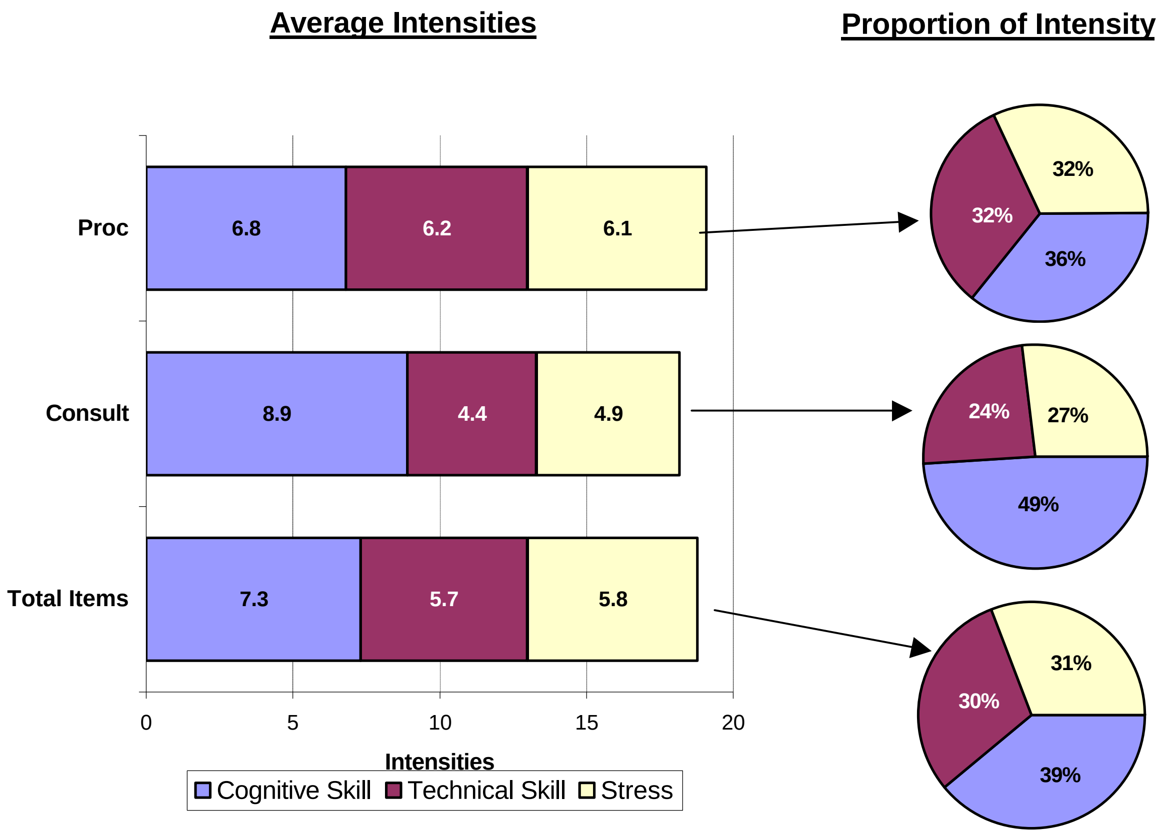
The mean ratings were 7.3 for cognitive skill, 5.7 for technical skill and 5.8 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	7.3	5.7	5.8	18.8
SD	1.8	2.1	2.3	5.0
Min	4.0	1.0	0.0	6.0
Max	10.0	10.0	10.0	30.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	6.8	6.2	6.1	19.1
Consultation Items	8.9	4.4	4.9	18.2
Total Items	7.3	5.7	5.8	18.8

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given significantly higher ranks than the consultation items (sum of ranks test, $p < 0.05$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	73	1	98	46.0
Consultation	25	15	96	59.8
Total	98	1	98	49.5

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Cardiology, Renal Medicine and ICU Consensus Group assessed 68 link items. These comprised all 25 of their consultation items and 43 of the 73 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were very much lower than those given to non-link items (sum of ranks test, $p < 0.001$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	25	15	96	59.8
Procedure-Link	43	12	98	56.5
Total Link	68	12	98	57.7
Non-Link (Procedure)	30	1	92	30.9
Total	98	1	98	49.5

Good maps of Cardiology, Renal Medicine and ICU items to CPT were available for 19 of their 98 items. A breakdown of the ranks given to these good map items and to the poor/no map items is set out in Table 4.3. The difference was not significant. This implies that good map items (i.e. potential core items) are well spread throughout the ranks.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	19	3	98	45.9
Poor/Non Map	79	1	96	50.4
Total	98	1	98	49.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analyzed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Cardiology, Renal Medicine and ICU is 1 to 125. This is largely due to an isolated extreme low value. When this is removed the ratio becomes 1 to 62.

By dividing imputed relative values by time we can impute <u>relative</u> rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 3.0. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 5.0.

The second of these ranges in relative rates of pay is slightly higher than the median observed for specialties examined so far[3]. The range is not the result of a small number of extreme values and is therefore robust. In terms of deviations in rates of pay, it should be possible to align Cardiology, Renal Medicine and ICU's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non link items and between good map items and poor/no map items in terms of imputed relative value (IRV) are set out in Table 5.1.

The consultation items were given imputed relative values that were significantly lower than those given to the procedure items (t tests, $p < 0.05$). The link items were given very much lower imputed relative values than the non-link items (t tests, $p < 0.001$). Th range for link items lacks high values. This could cause problems with alignment. There was no significant difference between the imputed relative values given to good ma items and those given to poor/no map items.

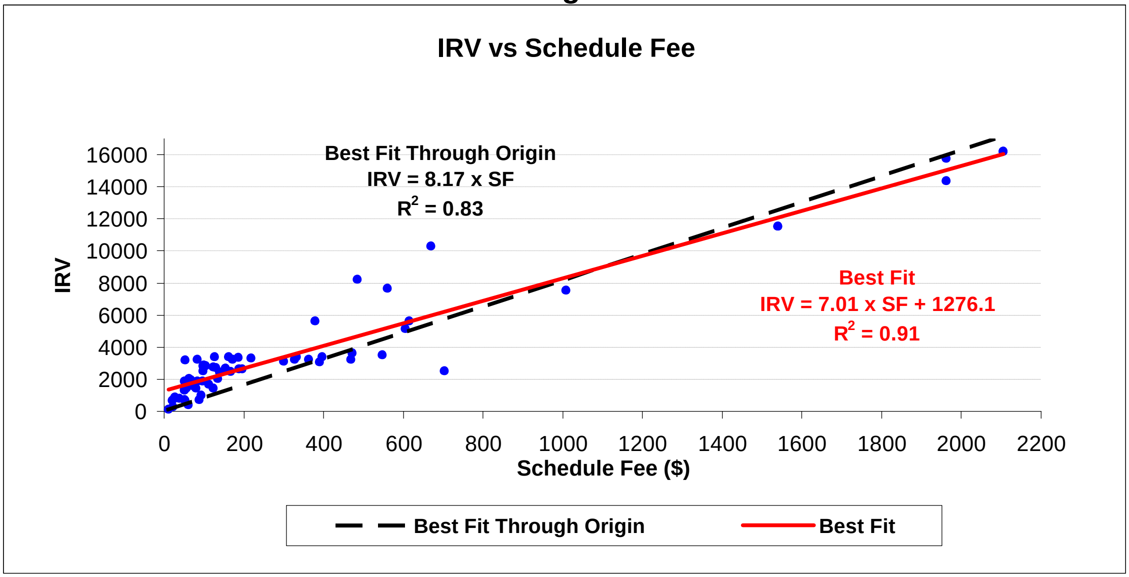
Table 5.1

Type of Item	Number Reviewed	IRVs				
		Mean	±	SD	Low	High
Consultation	25	2031	±	1190	384.0	4320.0
Procedure	73	3695	±	3715	130.0	16200.0
Link	68	2140	±	1174	130.0	5625.0
Non-link	30	5833	±	4925	660.0	16200.0
Good Map	19	3593	±	3846	130.0	15750.0
Poor/No Map	79	3193	±	3224	384.0	16200.0
Total	98	3270	±	3336	130.0	16200.0

A plot of Cardiology, Renal Medicine and ICU's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is good ($R^2 = 0.91$)[4]. However, there is a significant departure from a linear relationship through the origin. There are also a number of outliers which should be investigated. These comprise MBS item numbers 35305, 38270 and 38603.

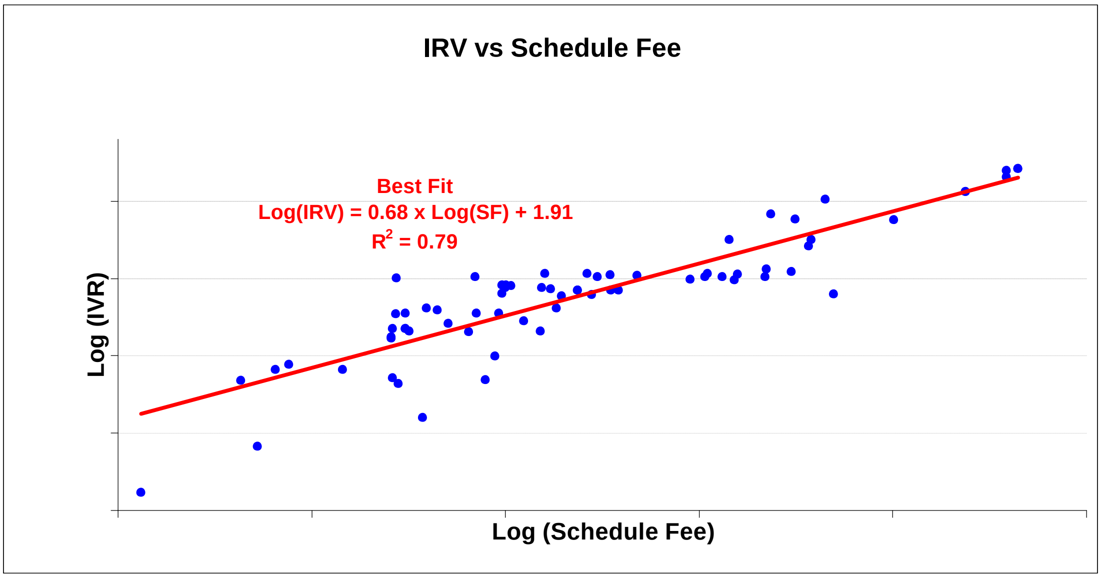
[4] An R^2 value of 0.91 means that the line explains 91% of the variation.

Figure 5.1



We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is not as good as in the graph of Figure 5.1 above. This suggests a non-linear relationship between IRV and schedule fee. There are again a number of outliers which should be investigated. These are MBS item numbers 11700, 11701, 11715 and 13708 in addition to 38603, which was mentioned previously.

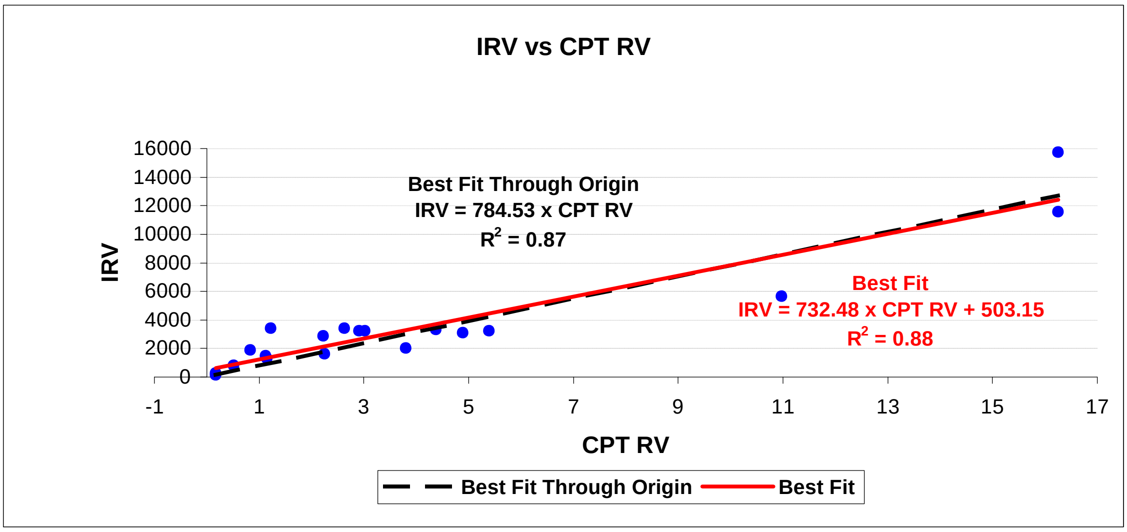
Figure 5.2



A plot of Cardiology, Renal Medicine and ICU's IRVs against CPT RV is set out in Figure 5.3. The fit is very good (R^2= 0.88) and the results are consistent with a simpl proportional relationship between the scales.

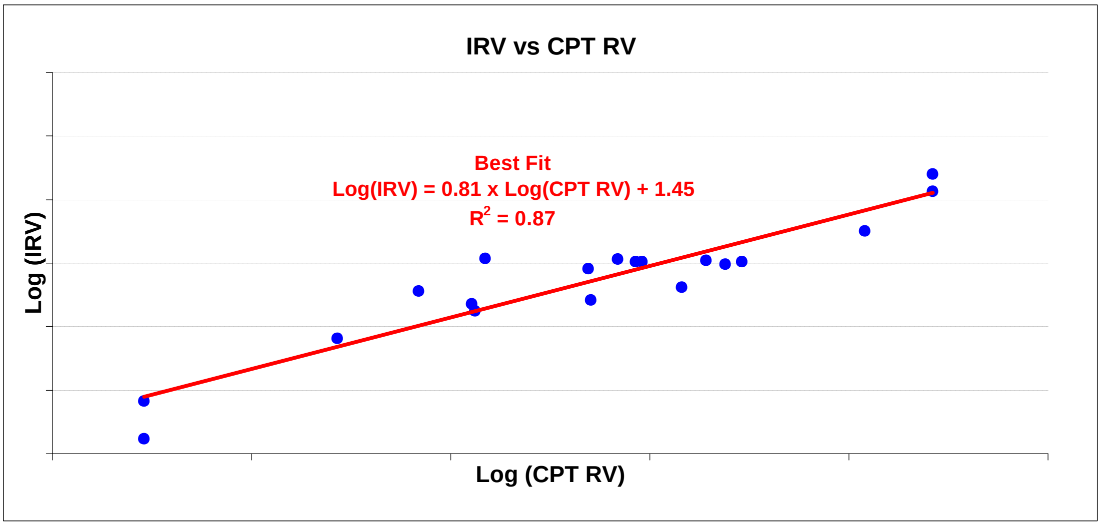
proportional relationship between the scales

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit is very similar explaining 87% of t variation. There are two outliers which may need to be investigated. They are MBS item numbers 11701 and 13879.

Figure 5.4



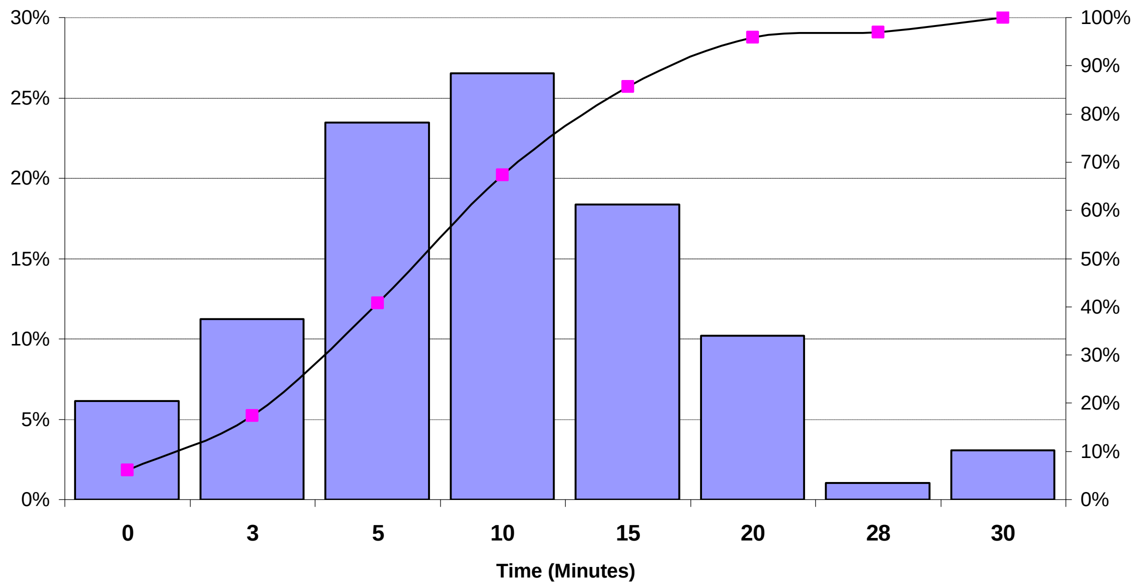
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	6	6.1%	6.1%
3	11	11.2%	17.3%
5	23	23.5%	40.8%
10	26	26.5%	67.3%
15	18	18.4%	85.7%
20	10	10.2%	95.9%
28	1	1.0%	96.9%
30	3	3.1%	100.0%
Total	98	100.0%	

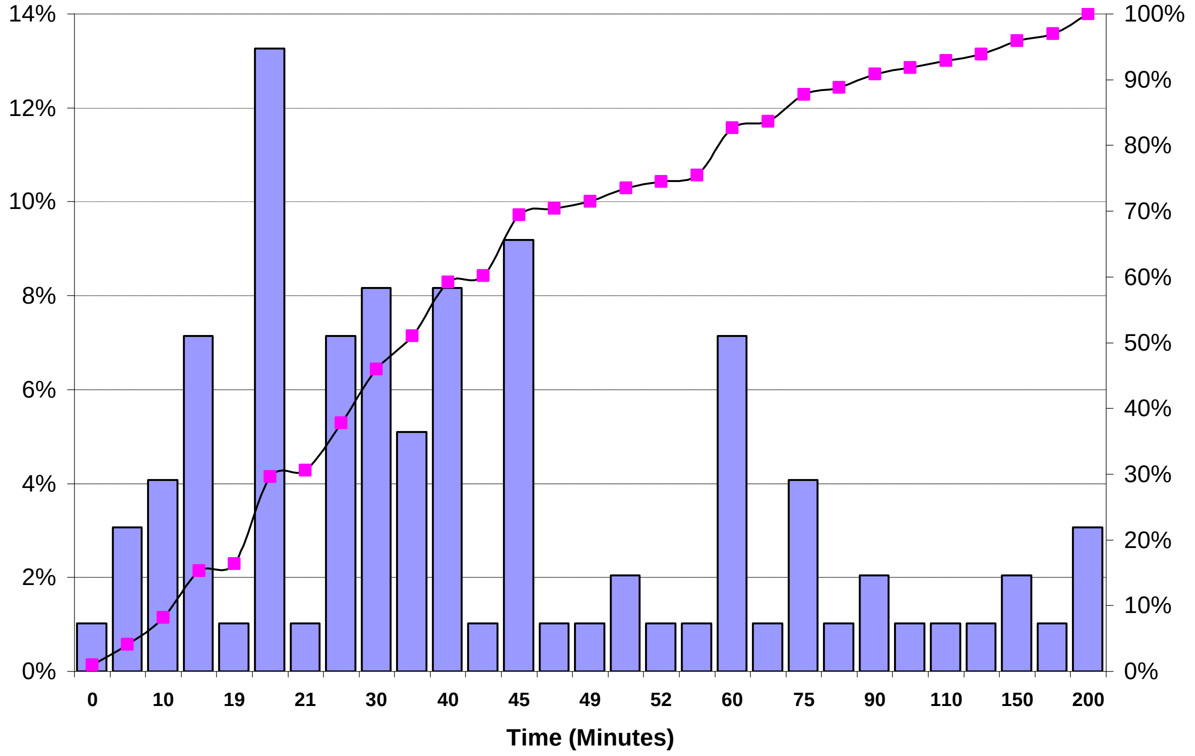
Number of missing values = 0



Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	1.0%	1.0%
5	3	3.1%	4.1%
10	4	4.1%	8.2%
15	7	7.1%	15.3%
19	1	1.0%	16.3%
20	13	13.3%	29.6%
21	1	1.0%	30.6%
25	7	7.1%	37.8%
30	8	8.2%	45.9%
35	5	5.1%	51.0%
40	8	8.2%	59.2%
41	1	1.0%	60.2%
45	9	9.2%	69.4%
48	1	1.0%	70.4%
49	1	1.0%	71.4%
50	2	2.0%	73.5%
52	1	1.0%	74.5%
55	1	1.0%	75.5%
60	7	7.1%	82.7%
70	1	1.0%	83.7%
75	4	4.1%	87.8%
80	1	1.0%	88.8%
90	2	2.0%	90.8%
100	1	1.0%	91.8%
110	1	1.0%	92.9%
120	1	1.0%	93.9%
150	2	2.0%	95.9%
180	1	1.0%	96.9%
200	3	3.1%	100.0%
Total	98	100.0%	



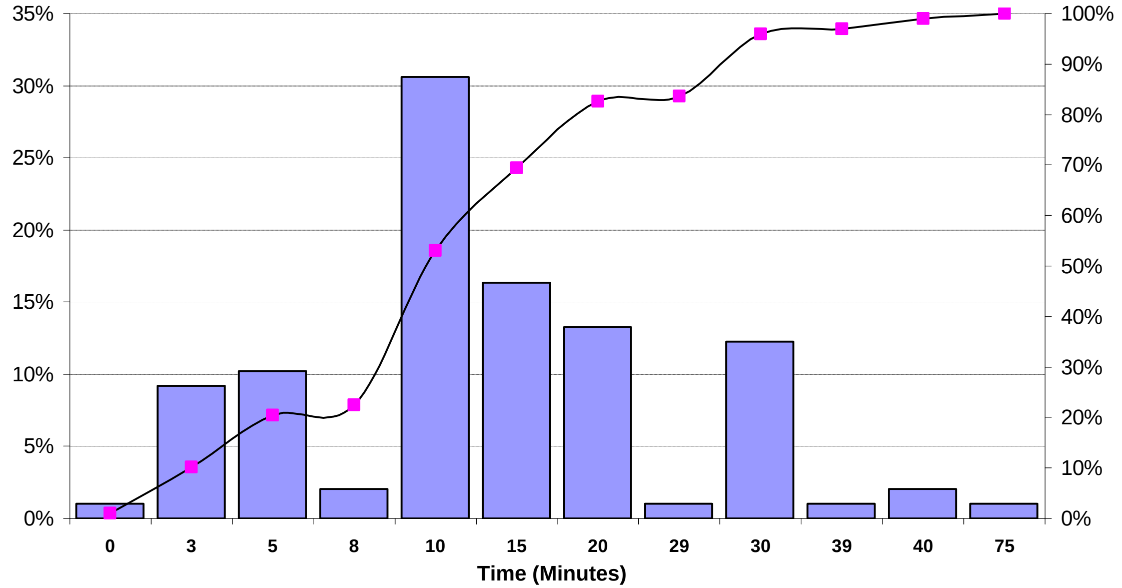
Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	1.0%	1.0%
3	9	9.2%	10.2%
5	10	10.2%	20.4%
8	2	2.0%	22.4%
10	30	30.6%	53.1%
15	16	16.3%	69.4%
20	13	13.3%	82.7%
29	1	1.0%	83.7%
30	12	12.2%	95.9%
39	1	1.0%	96.9%
40	2	2.0%	99.0%
75	1	1.0%	100.0%
Total	98	100.0%	

Number of missing values = 0



COMPARISON OF CARDIOLOGY / RENAL MEDICINE / INTENSIVE CARE (CRI) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x CRI/OTE
	ID	Type	Definition of Time *		CRI	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	3	32.0	29.7	107.7
	H6	Priv	Knife to Skin -to- Drapes Removed	0			
	H11	Priv	Pt Prepped -to- Drapes Removed	3	23.3	27.3	85.4
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	4	31.5	17.7	178.0
	H8	Priv	Pt Positioned -to- Drapes Removed	3	28.3	16.2	175.3
	H10	Priv	Pt Positioned -to- Drapes Removed	7	59.0	45.5	129.8
	H13	Priv	Pt Positioned -to- Drapes Removed	2	30.0	32.0	93.8
	H15	Priv	Pt Positioned -to- Drapes Removed	18	55.1	41.6	132.5
	H16	Pub	Pt Positioned -to- Dressing Applied	8	36.4	39.7	91.7
	H17	Pub	Surgeon with Pt -to- Drapes Removed	8	39.4	75.2	52.4
	H18	Priv	Pt Positioned -to- Drapes Removed	8	33.9	24.7	136.9
	H19	Pub	Pt Positioned -to- Dressing Applied	8	43.3	34.4	125.7
	H20	Pub	Pt Positioned -to- Dressing Applied	10	48.0	38.9	123.3
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	8	36.0	41.9	85.9
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	8	39.9	48.2	82.7
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Removed	4	32.8	38.5	85.1
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	3	28.3	17.6	161.4
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	15	65.2	59.4	109.7
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	3	32.0	14.3	224.3
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	1	40.0	55.0	72.7
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	18	55.1	44.2	124.6
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	8	36.4	44.1	82.4
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	8	39.4	85.3	46.2
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	8	37.0	32.7	113.0
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	10	42.1	40.6	103.8
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	11	47.4	46.1	102.8
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staff	8	39.9	54.3	73.4
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	5	29.2	24.5	119.3
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	3	32.0	40.2	79.6
	H6	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H8	Priv	Prep. Anaes. -to- Drapes Removed	3	28.3	18.6	152.3
	H10	Priv	Prep. Anaes. -to- Drapes Removed	6	56.3	52.8	106.8
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	2	30.0	34.0	88.2
	H15	Priv	Induction of Anaes -to- Drapes Removed	17	53.0	43.1	122.9
	H16	Pub	Prep. Anaes. -to- Dressing Applied	9	34.0	50.5	67.4
	H17	Pub	Prep. Anaes. -to- Drapes Removed	7	42.1	106.7	39.5
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	9	35.1	33.7	104.3
	H19	Pub	Prep. Anaes. -to- Dressing Applied	9	40.7	39.0	104.2
	H20	Pub	Prep. Anaes. -to- Dressing Applied	11	46.5	77.1	60.3
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	8	39.9	53.4	74.7
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Removed	3	33.7	42.0	80.2
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	40	69.9	103.5	67.6
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	2	27.5	25.5	107.8
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	1	41.0	17.1	239.2
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	3	28.3	20.0	141.7
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	16	65.8	69.8	94.3
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	4	27.8	22.6	122.8
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	4	25.0	34.5	72.5
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	1	20.0	24.8	80.7
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	23	45.5	71.4	63.7
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	17	53.0	45.8	115.8
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	8	36.4	54.4	66.9
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	7	42.1	118.1	35.7
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	11	40.1	50.1	80.1
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	11	46.5	86.8	53.5
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	8	39.9	59.5	67.1
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Staf	16	42.6	42.2	100.9
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	16	58.8	42.4	138.6
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	4	25.0	49.5	50.5
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	2	30.0	50.0	60.0
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	17	55.9	71.8	78.0
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	8	34.5	39.0	88.5
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	12	40.5	70.3	57.6
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	16	39.2	45.0	87.0
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	22	49.8	39.9	124.9
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	7	28.7	17.9	160.0

* Definition of Time
- see Attachment A

**** Median ratio of CRI intra time estimates to OPT**
Unweighted = 123.3 %
Weighted (for number of items in common) = 124.5 %

Attachment - 2 (continued)

ATTACHMENT - A

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST			PT ENTERS OP SUITE	PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME								END OP TIME		XFER TO RECOV	XFER FROM RECOV
				Anaesth. arrives to talk to Pt	Anaesth. prepares Pt for anaes-cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is position	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
ID	TIME	TYPE																
Hosp4	H4OST	Priv																
Hosp6	H6OST	Priv																
Hosp11	H11OST	Priv																
Hosp1	H1OPT	Priv																
Hosp8	H8OPT	Priv																
Hosp10	H10OPT	Priv																
Hosp13	H13OPT	Priv																
Hosp15	H15OPT	Priv																
Hosp16	H16OPT	Pub																
Hosp17	H17OPT	Pub																
Hosp18	H18OPT	Priv																
Hosp19	H19OPT	Pub																
Hosp20	H20OPT	Pub																
APHA	APHAOPT	Priv																
CANS	CANSOPT	Pub & Priv																
Deloitte	DTOPT	Pub & Priv																
Hosp8	H8OPT2	Priv																
Hosp9A	H9AOPT2	Priv																
Hosp9B	H9BOPT2	Priv/Day																
Hosp13	H13OPT2	Priv																
Hosp15	H15OPT2	Priv																
Hosp16	H16OPT2	Pub																
Hosp17	H17OPT2	Pub																
Hosp18	H18OPT2	Priv																
Hosp19	H19OPT2	Pub																
Hosp20	H20OPT2	Pub																
CANS	CANSOPT2	Pub & Priv																
Hosp1	H1OAT	Priv																
Hosp4	H4OAT	Priv																
Hosp6	H6OAT	Priv																
Hosp8	H8OAT	Priv																
Hosp10	H10OAT	Priv																
Hosp13	H13OAT	Priv																
Hosp15	H15OAT	Pub																
Hosp16	H16OAT	Pub																
Hosp17	H17OAT	Priv																
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub																
Hosp20	H20OAT	Pub & Priv																
CAnS	CANSOAT	Pub & Priv																
Deloitte	DTOAT	Pub & Priv																
MBS	MBSOAT2	Pub & Priv																
Hosp5	H5OAT2	Priv																
Hosp7	H7OAT2	Priv/Day																
Hosp8	H8OAT2	Priv																
Hosp9A	H9AOAT2	Priv																
Hosp9B	H9BOAT2	Priv/Day																
Hosp11	H11OAT2	Priv																
Hosp12	H12OAT2	Pub																
Hosp14	H14OAT2	Pub																
Hosp15	H15OAT2	Priv																
Hosp16	H16OAT2	Pub																
Hosp17	H17OAT2	Pub																
Hosp19	H19OAT2	Pub																
Hosp20	H20OAT2	Pub																
CANS	CANSOAT2	Pub & Priv																
WAGroup	WAOAT2	Priv																
Hosp2	H2THT	Priv																
Hosp3	H3THT	Pub																
Hosp11	H11THT	Pub																
Hosp13	H13THT	Priv																
Hosp15	H15THT	Priv																
Hosp18	H18THT	Priv																
Hosp19	H19THT	Day & Other																
C'mix -Pub	CMXPUTHT	Priv																
C'mix -Pte	CMXPVTHT	Priv																
C'mix-oth	CMXOTTHT	Priv																

KEY: | = Hospitals where start/end times are defined by > 1 pathway time option

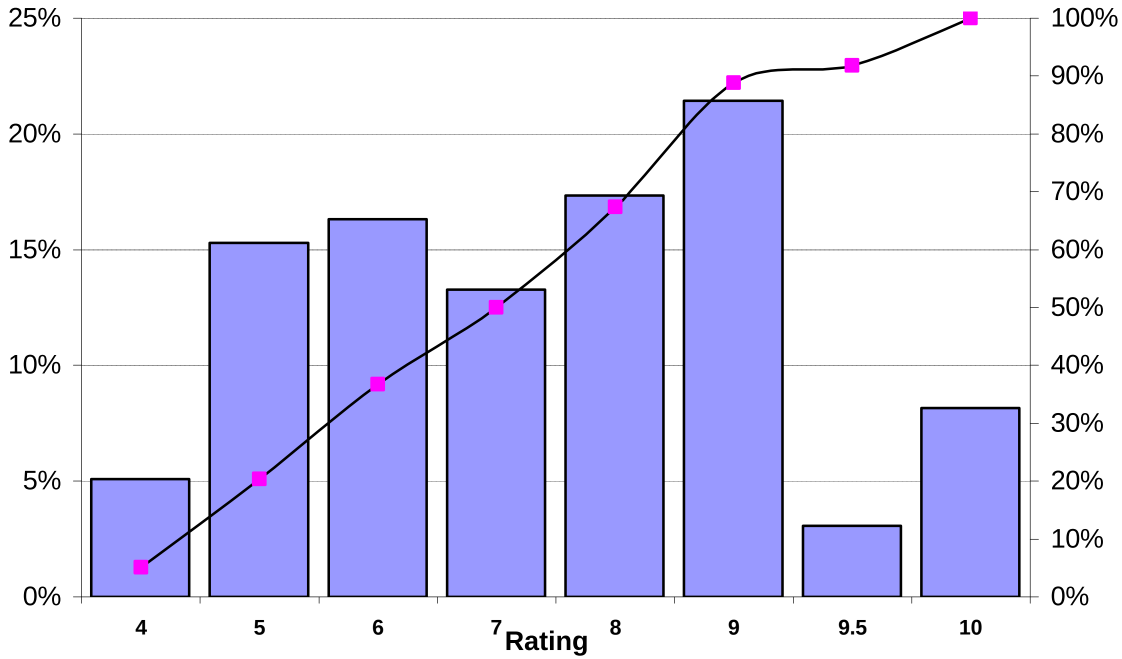
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
4	5	5.1%	5.1%
5	15	15.3%	20.4%
6	16	16.3%	36.7%
7	13	13.3%	50.0%
8	17	17.3%	67.3%
9	21	21.4%	88.8%
9.5	3	3.1%	91.8%
10	8	8.2%	100.0%
Total	98	100.0%	

Number of missing values = 0

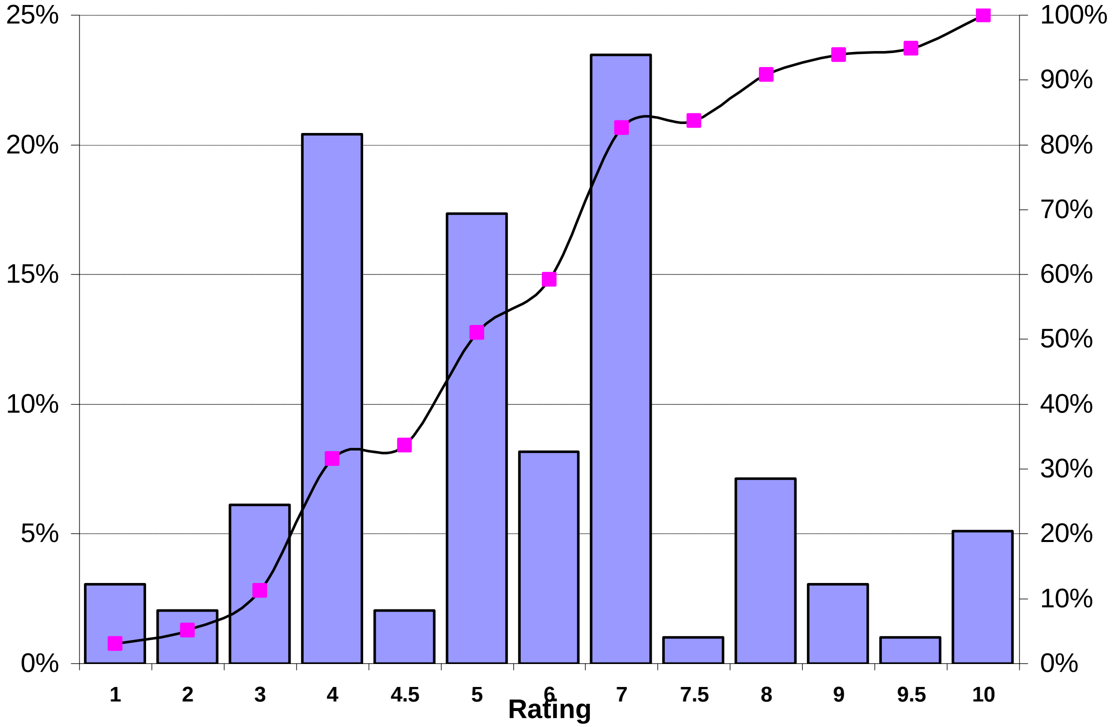


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
1	3	3.1%	3.1%
2	2	2.0%	5.1%
3	6	6.1%	11.2%
4	20	20.4%	31.6%
4.5	2	2.0%	33.7%
5	17	17.3%	51.0%
6	8	8.2%	59.2%
7	23	23.5%	82.7%
7.5	1	1.0%	83.7%
8	7	7.1%	90.8%
9	3	3.1%	93.9%
9.5	1	1.0%	94.9%
10	5	5.1%	100.0%
Total	98	100.0%	

Number of missing values = 0

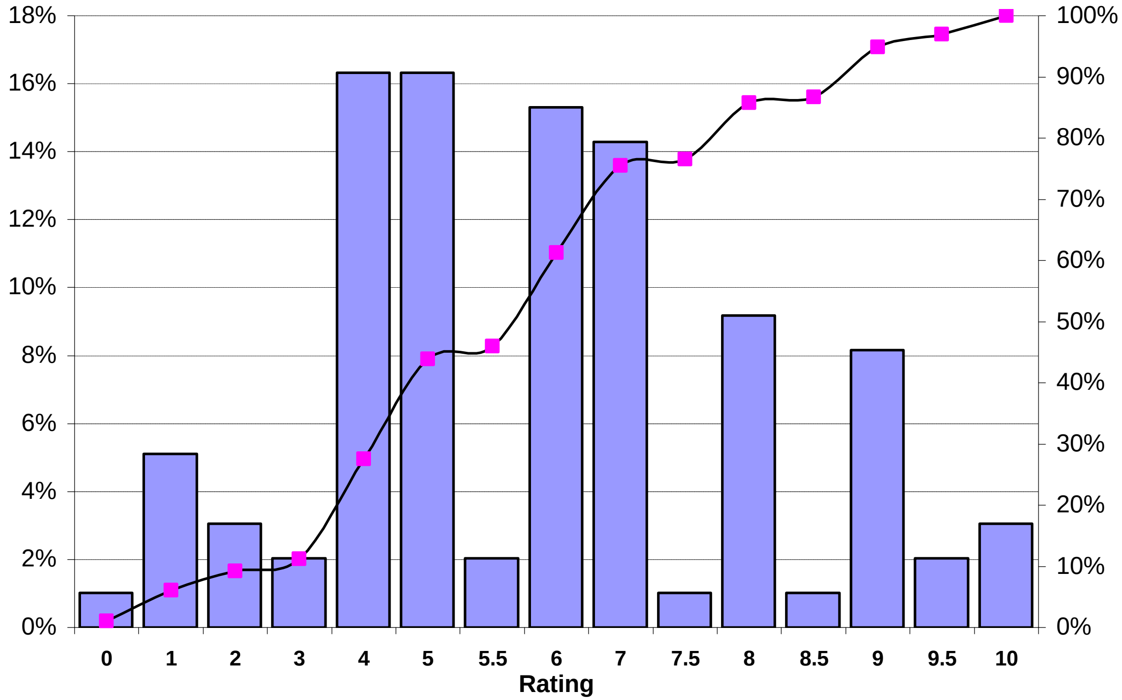


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
0	1	1.0%	1.0%
1	5	5.1%	6.1%
2	3	3.1%	9.2%
3	2	2.0%	11.2%
4	16	16.3%	27.6%
5	16	16.3%	43.9%
5.5	2	2.0%	45.9%
6	15	15.3%	61.2%
7	14	14.3%	75.5%
7.5	1	1.0%	76.5%
8	9	9.2%	85.7%
8.5	1	1.0%	86.7%
9	8	8.2%	94.9%
9.5	2	2.0%	96.9%
10	3	3.1%	100.0%
Total	98	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Cardiology, Renal Medicine and ICU and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	15	0	15
Oral and Maxillo-facial Surgery	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	1	25	26
Cardio Thoracic Surgery	7	0	7
Neurosurgery	1	22	23
Orthopaedic surgery	0	25	25
Paediatric Surgery	1	14	15
Plastic Surgery	0	0	0
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	0	0	0
ENT	2	3	5
Anaesthesia	18	25	43
Dermatology	0	6	6
Paediatric / Thoracic Medicine	8	24	32
General Medicine	15	18	33
Radiation, Oncology	0	25	25
Gastroenterology	1	24	25
Neurology	0	25	25
Haematology, Medical Oncology	1	0	1
Psychiatry	0	22	22
Total	43	25	68

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Radiation Oncology

Summary Status Report

November 11, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Radiation Oncology Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 80 items. These comprised 54 procedure items and 26 consultation items.

Analysis of this information showed:

- There were insufficient data in NCCH's Theatre Times Database to make a meaningful assessment of bias or lack of bias in Radiation Oncology's Intra Time estimates.

- There was no significant difference between the ranks given to procedure items and consultation items nor was there a significant difference between the ranks given to link items and non-link items.

- There were no potential core items,

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 3.04. This is lower than the median observed for specialties so far examined. In terms of deviations in rates of pay, there shouldn't be any major difficulty in aligning Radiation Oncology's rankings and ratings with those of the other groups.

- There was no significant difference between the imputed relative values given to procedure items and consultation items nor was there a significant difference between the imputed relative values given to link items and non-link items.

- The correlation between the imputed relative values for Radiation Oncology and the Medicare Benefits Schedule Fee was reasonable ($R^2 = 76\%$).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Radiation Oncology are set out in Table 2.1 together with associated standard deviations and ranges.

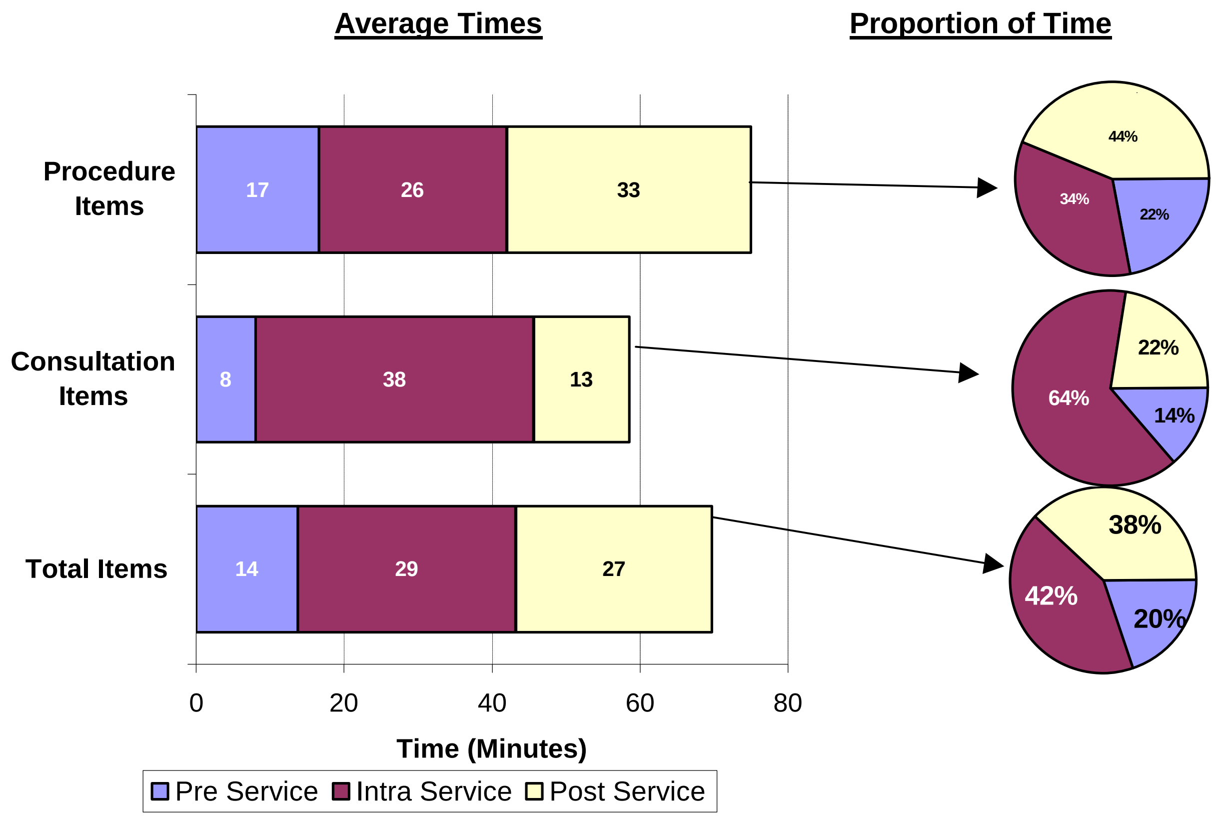
The mean intra service time was 29 minutes and the mean total time was 70 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	14	29	27	70
SD	15	55	30	77
Min	1	1	1	5
Max	90	475	80	580

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	16.6	25.5	33.0	75.1
Consultation Items	8.0	37.7	13.0	58.7
Total Items	13.8	29.5	26.5	69.8

Radiation Oncology's procedure intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies. The median ratio of Radiation Oncology's intra time estimates to the observed procedure times was based on too little data to be meaningful. Details are provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Radiation Oncology are set out in Table 3.1 together with associated standard deviations and ranges.

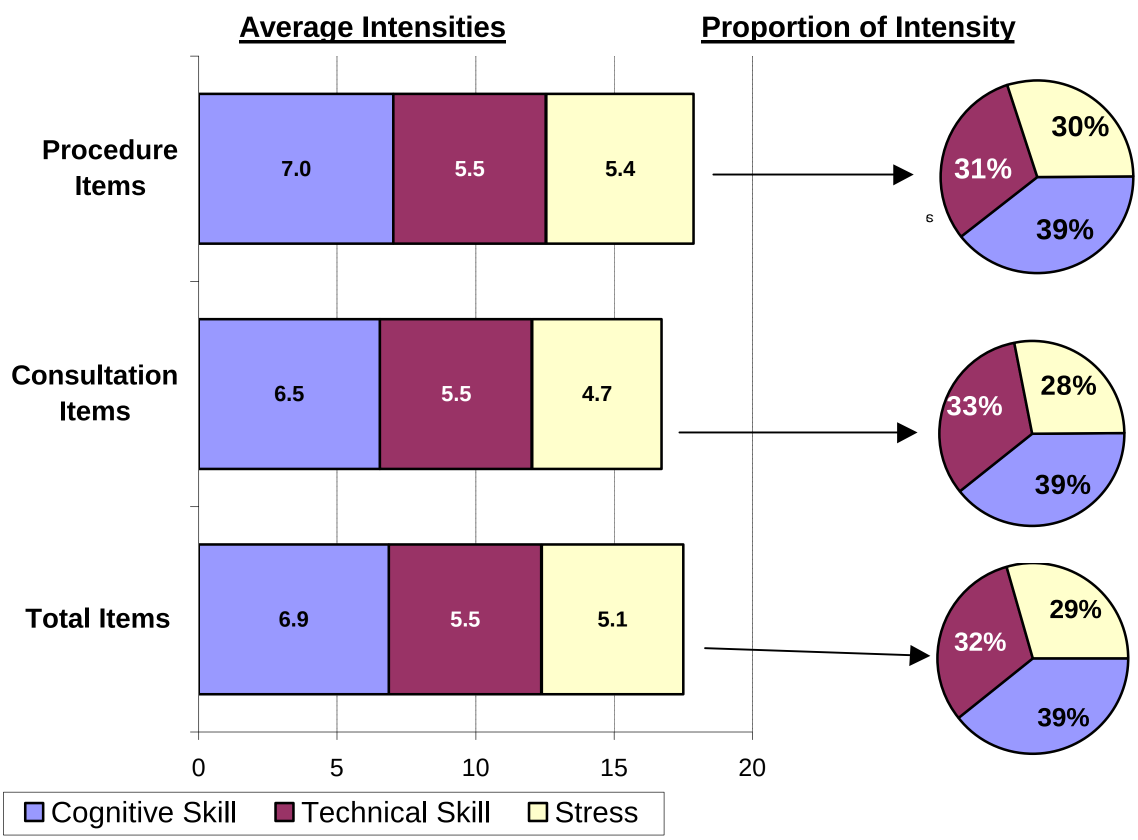
The mean ratings were 6.9 for cognitive skill, 5.5 for technical skill and 5.1 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	6.9	5.5	5.1	17.5
SD	1.5	2.0	2.3	5.3
Min	4.0	2.0	2.0	9.0
Max	10.0	10.0	10.0	30.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	7.0	5.5	5.4	17.9
Consultation Items	6.5	5.5	4.7	16.7
Total Items	6.9	5.5	5.1	17.5

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills

b) Technical Skill = Technical Skill and Physical Effort

c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. There was very little difference between the ranks given to the procedure items and those given to the consultation items.

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	54	1	80	39.94
Consultation	26	12	66	41.65
Total	80	1	80	40.50

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Radiation Oncology Consensus Group assessed 31 link items. These comprised all 26 of their consultation iten and 5 of the 54 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. Tl difference between the ranks given to link items and those given to non-link items was not significant.

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure-Link	5	2.5	76	53.70
Consultation-Link	26	12	66	41.65
Total Link	31	2.5	76	43.60
Total Non-link (Procedure)	49	1	80	38.54
Total	80	1	80	40.50

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Radiation Oncology is 1 to 353.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 3.04. This is only marginally higher than the median observed for specialties examined so far[3]. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is also 1 to 3.04. This is lower than the median observed for specialties examined so far.

In terms of deviations in rates of pay there shouldn't be any major difficulty in aligning Radiation Oncology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items and between link items and non-link items in terms of imputed relative value (IRV) are set out in Table 5.1.

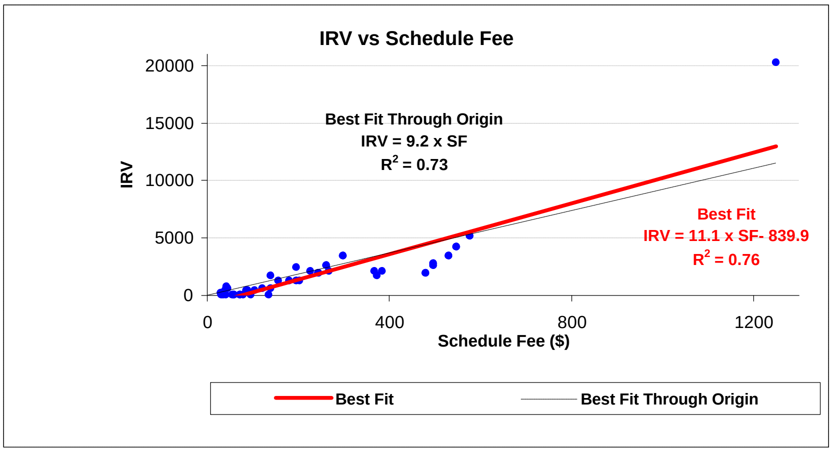
There was no significant difference between the imputed relative values given to the procedure items and those given to the consultation items nor was there any significant difference between imputed relative values given to the link items and those given to the non-link items.

Table 5.1

Type of Item	Number Reviewed	IRVs Mean	± SD	Low	High
Procedure	54	1901	± 2922	57.5	20300
Consultation	26	1258	± 741	137.5	2750
Link	31	1257	± 1055	67.5	5200
Non-link	49	1968	± 2995	57.5	20300
Total	80	1692	± 2449	57.5	20300

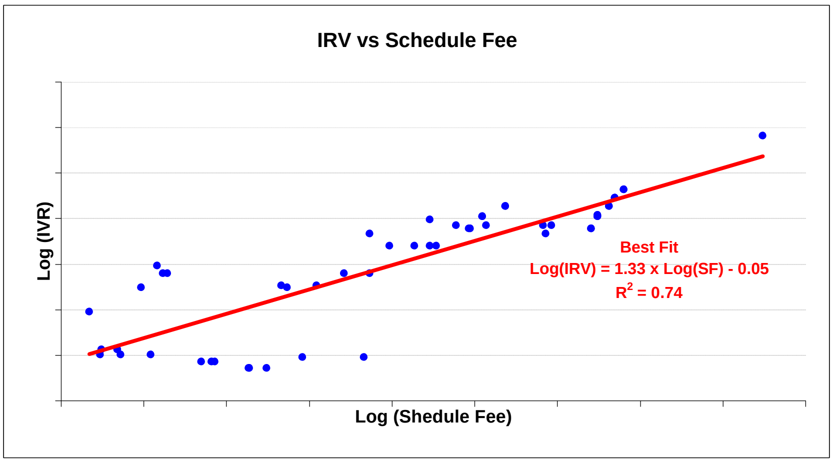
A plot of Radiation Oncology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). Two attempts to fit the data are also shown. The line of "Best F explains 76% of the variation in imputed relative values while the "Best Fit Through the Origin" explains 73%. The figure shows that MBS item 15600 is a long way from the line of best fit and should be investigated.

Figure 5.1



We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is not as good as that for IR against Schedule Fee, explaining 74% of the variation as against 76%. The seven items, MBS numbers 15003, 15009, 15103, 15109, 15115, 15208 and 15214 which fall well belov the line, all have "Derived Fees". The three outliers which occur above the line, MBS numbers 15348, 15518 and 15527, will need to be investigated.

Figure 5.2



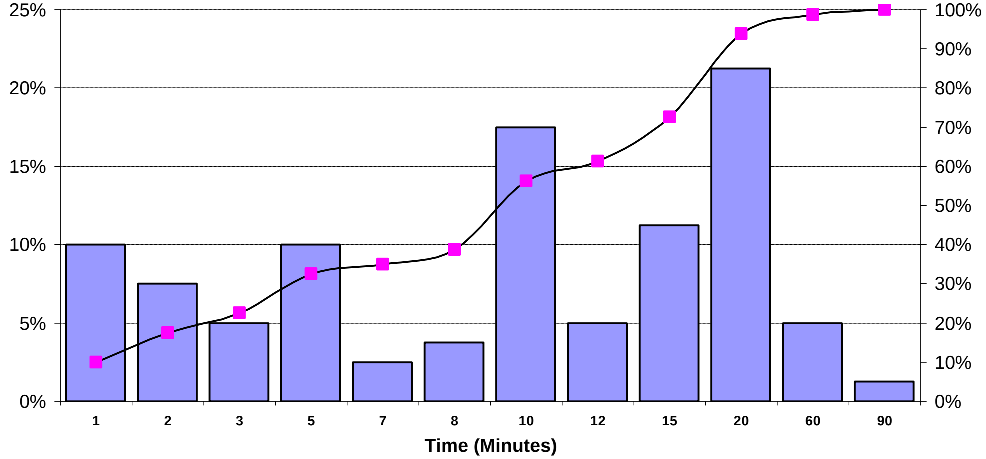
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	8	10.0%	10.0%
2	6	7.5%	17.5%
3	4	5.0%	22.5%
5	8	10.0%	32.5%
7	2	2.5%	35.0%
8	3	3.8%	38.8%
10	14	17.5%	56.3%
12	4	5.0%	61.3%
15	9	11.3%	72.5%
20	17	21.3%	93.8%
60	4	5.0%	98.8%
90	1	1.3%	100.0%
Total	80	100.0%	

Number of missing values = 0

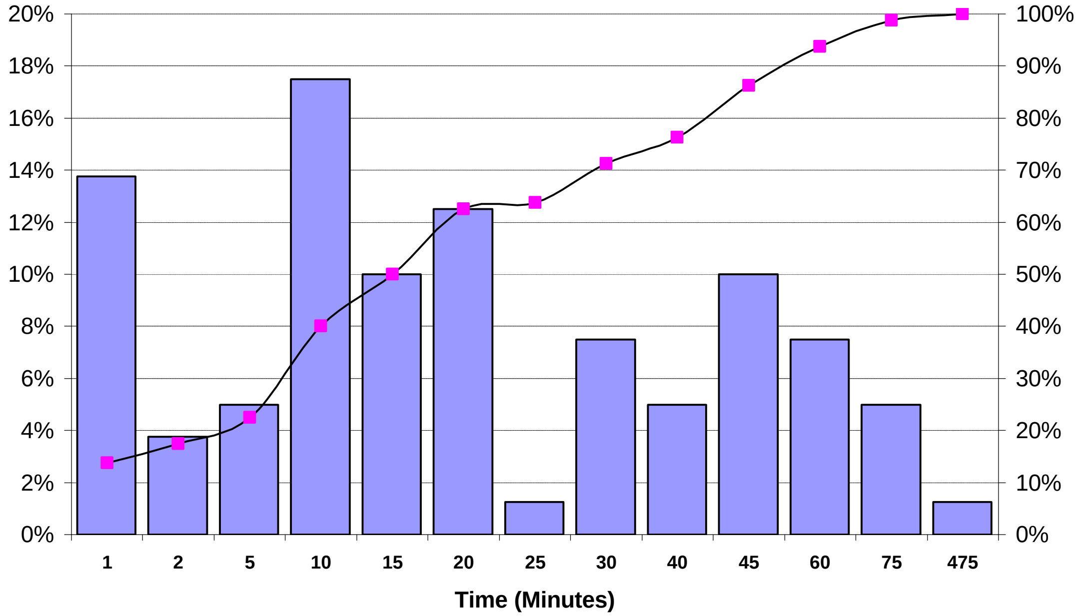


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	11	13.8%	13.8%
2	3	3.8%	17.5%
5	4	5.0%	22.5%
10	14	17.5%	40.0%
15	8	10.0%	50.0%
20	10	12.5%	62.5%
25	1	1.3%	63.8%
30	6	7.5%	71.3%
40	4	5.0%	76.3%
45	8	10.0%	86.3%
60	6	7.5%	93.8%
75	4	5.0%	98.8%
475	1	1.3%	100.0%
Total	80	100.0%	

Number of missing values = 0

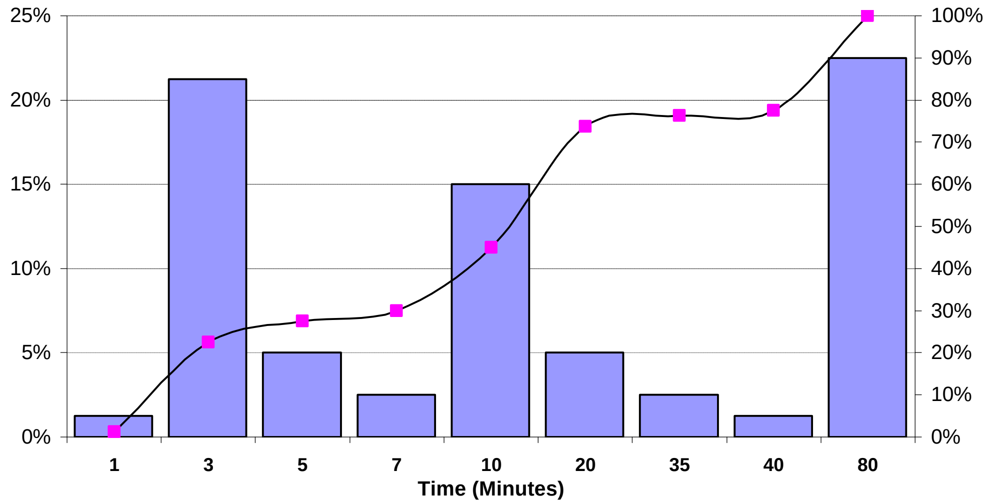


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	1	1.3%	1.3%
3	17	21.3%	22.5%
5	4	5.0%	27.5%
7	2	2.5%	30.0%
10	12	15.0%	45.0%
20	4	5.0%	73.8%
35	2	2.5%	76.3%
40	1	1.3%	77.5%
80	18	22.5%	100.0%
Total	80	100.0%	

Number of missing values = 0



Attachment-2

COMPARISON OF RADIATION ONCOLOGY (RADO) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x RADO/OTE
	ID	Type	Definition of Time *		RADO	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	0			
	H6	Priv	Knife to Skin -to- Drapes Removed	0			
	H11	Priv	Pt Prepped -to- Drapes Remove	0			
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	0			
	H8	Priv	Pt Positioned -to- Drapes Removed	0			
	H10	Priv	Pt Positioned -to- Drapes Removed	0			
	H13	Priv	Pt Positioned -to- Drapes Removed	0			
	H15	Priv	Pt Positioned -to- Drapes Removed	0			
	H16	Pub	Pt Positioned -to- Dressing Applied	2	40.0	27.5	145.5
	H17	Pub	Surgeon with Pt -to- Drapes Removed	0			
	H18	Priv	Pt Positioned -to- Drapes Removed	0			
	H19	Pub	Pt Positioned -to- Dressing Applied	0			
	H20	Pub	Pt Positioned -to- Dressing Applied	0			
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	0			
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	1	60.0	120.0	50.0
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Remove	0			
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	1	45.0	101.7	44.3
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	2	40.0	32.5	123.1
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	0			
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	0			
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	0			
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Sta	1	60.0	125.0	48.0
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	0			
	H6	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H8	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H10	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	0			
	H15	Priv	Induction of Anaes -to- Drapes Removed	0			
	H16	Pub	Prep. Anaes. -to- Dressing Applied	2	40.0	44.5	89.9
	H17	Pub	Prep. Anaes. -to- Drapes Removed	0			
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	0			
	H19	Pub	Prep. Anaes. -to- Dressing Applied	0			
	H20	Pub	Prep. Anaes. -to- Dressing Applied	0			
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	1	60.0	125.0	48.0
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	0			
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	18	29.4	37.5	78.5
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	1	45.0	114.3	39.4
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	10	29.1	70.1	41.5
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	0			
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	2	40.0	49.5	80.8
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	1	60.0	130.0	46.2
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	0			
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	0			
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	0			
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	1	10.0	50.0	20.0
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	1	10.0	5.0	200.0
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Sta	0			

* Definition of Time
- see Attachment A

**** Median ratio of RADO intra time estimates to OPT**
Unweighted = 97.7 %
Weighted (for number of items in common) = 145.5%

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST			PT ENTERS OP SUITE	PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME								END OP TIME		XFER TO RECOV	XFER FROM RECOV
				Anaesth. arrives to talk to Pt	Anaes prepares Pt for anaes- cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is position	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed	Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
ID	**Time**	**Type**																
Hosp4	H4OST	Priv																
Hosp6	H6OST	Priv																
Hosp11	H11OST	Priv																
Hosp1	H1OPT	Priv																
Hosp8	H8OPT	Priv																
Hosp10	H10OPT	Priv																
Hosp13	H13OPT	Priv																
Hosp15	H15OPT	Priv																
Hosp16	H16OPT	Pub																
Hosp17	H17OPT	Pub																
Hosp18	H18OPT	Priv																
Hosp19	H19OPT	Pub																
Hosp20	H20OPT	Pub																
APHA	APHAOPT	Priv																
CANS	CANSOPT	Pub & Priv																
Deloitte	DTOPT	Pub & Priv																
Hosp8	H8OPT2	Priv																
Hosp9A	H9AOPT2	Priv																
Hosp9B	H9BOPT2	Priv/Day																
Hosp13	H13OPT2	Priv																
Hosp15	H15OPT2	Priv																
Hosp16	H16OPT2	Pub																
Hosp17	H17OPT2	Pub																
Hosp18	H18OPT2	Priv																
Hosp19	H19OPT2	Pub																
Hosp20	H20OPT2	Pub																
CANS	CANSOPT2	Pub & Priv																
Hosp1	H1OAT	Priv																
Hosp4	H4OAT	Priv																
Hosp6	H6OAT	Priv																
Hosp8	H8OAT	Priv																
Hosp10	H10OAT	Priv																
Hosp13	H13OAT	Priv																
Hosp15	H15OAT	Pub																
Hosp16	H16OAT	Pub																
Hosp17	H17OAT	Priv																
Hosp18	H18OAT	Pub																
Hosp19	H19OAT	Pub																
Hosp20	H20OAT	Pub & Priv																
CAnS	CANSOAT	Pub & Priv																
Deloitte	DTOAT	Pub & Priv																
MBS	MBSOAT2	Pub & Priv																
Hosp5	H5OAT2	Priv																
Hosp7	H7OAT2	Priv/Day																
Hosp8	H8OAT2	Priv																
Hosp9A	H9AOAT2	Priv																
Hosp9B	H9BOAT2	Priv/Day																
Hosp11	H11OAT2	Priv																
Hosp12	H12OAT2	Pub																
Hosp14	H14OAT2	Pub																
Hosp15	H15OAT2	Priv																
Hosp16	H16OAT2	Pub																
Hosp17	H17OAT2	Pub																
Hosp19	H19OAT2	Pub																
Hosp20	H20OAT2	Pub																
CANS	CANSOAT2	Pub & Priv																
WAGroup	WAOAT2	Priv																
Hosp2	H2THT	Priv																
Hosp3	H3THT	Pub																
Hosp11	H11THT	Pub																
Hosp13	H13THT	Priv																
Hosp15	H15THT	Priv																
Hosp18	H18THT	Priv																
Hosp19	H19THT	Day & Other																
C'mix -Pub	CMXPUTHT	Priv																
C'mix -Pte	CMXPVTHT	Priv																
C'mix-oth	CMXOTTHT	Priv																

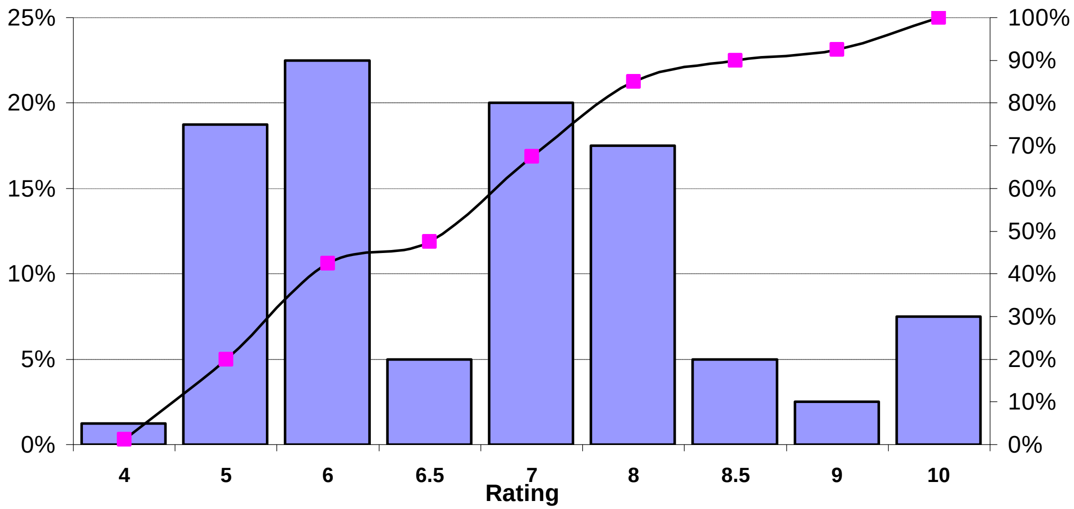
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
4	1	1.3%	1.3%
5	15	18.8%	20.0%
6	18	22.5%	42.5%
6.5	4	5.0%	47.5%
7	16	20.0%	67.5%
8	14	17.5%	85.0%
8.5	4	5.0%	90.0%
9	2	2.5%	92.5%
10	6	7.5%	100.0%
Total	80	100.0%	

Number of missing values = 0

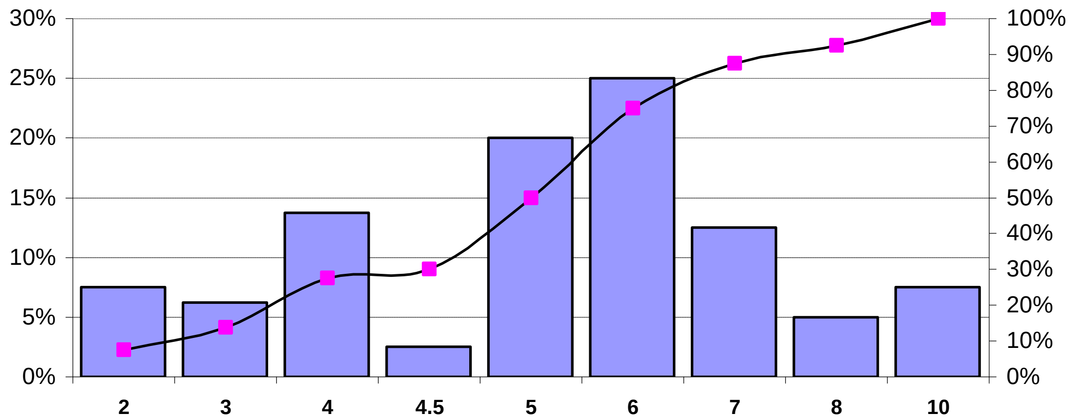


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
2	6	7.5%	7.5%
3	5	6.3%	13.8%
4	11	13.8%	27.5%
4.5	2	2.5%	30.0%
5	16	20.0%	50.0%
6	20	25.0%	75.0%
7	10	12.5%	87.5%
8	4	5.0%	92.5%
10	6	7.5%	100.0%
Total	80	100.0%	

Number of missing values = 0

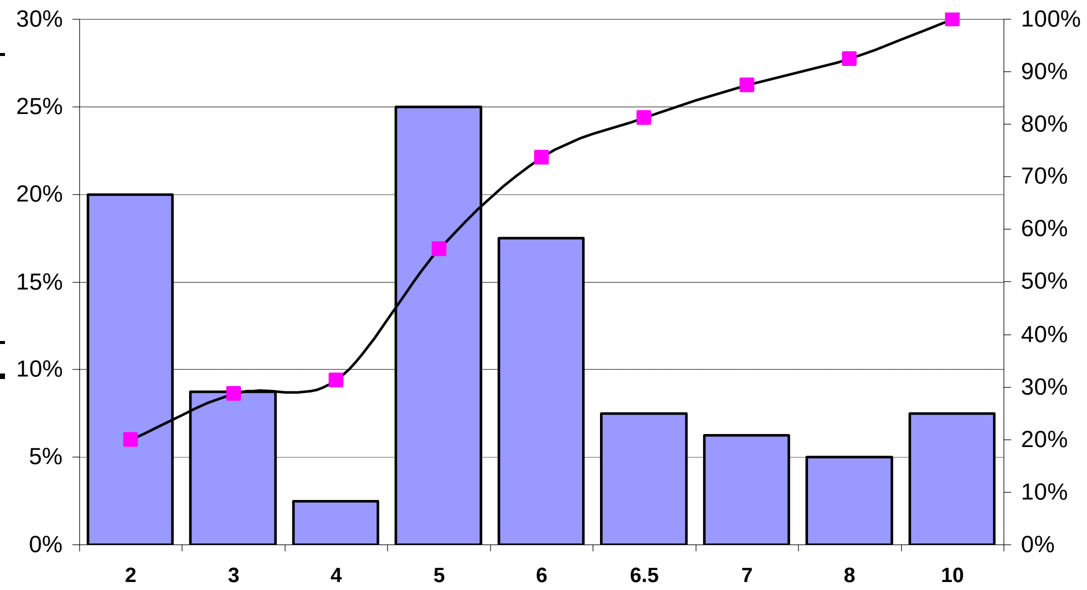


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
2	16	20.0%	20.0%
3	7	8.8%	28.8%
4	2	2.5%	31.3%
5	20	25.0%	56.3%
6	14	17.5%	73.8%
6.5	6	7.5%	81.3%
7	5	6.3%	87.5%
8	4	5.0%	92.5%
10	6	7.5%	100.0%
Total	80	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Neurosurgery and the other Consensus Groups is se out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	0	0	0
Oral and Maxillo-Facial Surgery	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	0	26	26
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	16	16
Orthopaedic Surgery	0	26	26
Paediatric Surgery	0	13	13
Plastic Surgery	0	0	0
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	3	0	3
ENT	0	3	3
Anaesthesia	0	26	26
Dermatology	2	6	8
Paediatric / Thoracic Medicine	0	24	24
General Medicine	0	19	19
Cardiology, Renal, ICU	0	0	0
Gastroenterology	0	24	24
Neurology	0	26	26
Haematology, Medical Oncology	0	0	0
Psychiatry	0	22	22
Total	5	26	31

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Gastroenterology

Summary Status Report

October 27, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Gastroenterology Consensus Group.

The Gastroenterology Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 91 items. These comprised 33 procedure items and 58 consultation items.

Analysis of this information showed:

- The median ratio of Gastroenterology's intra time estimates to NCCH's Theatre Times Database observed procedure times was151.0%. This implies a strong tendency by this group to over estimate intra times,
- The group gave very similar average rankings to the procedure items and the consultation items,
- There was no bias in the ranking of either link items or potential core items,
- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 4.9. In terms of deviations in rates of pay, there shouldn't be any major difficulty in aligning Gastroenterology's rankings and ratings with those of the other groups.
- Consultation and procedure items were given very similar average imputed relative[1] values.
- There was no significant difference between imputed relative values given to link items and non link items nor between imputed relative values given to good map items and poor/no map items.
- The two correlations between the imputed relative values for Gastroenterology and schedule fee and CPT RV were good. There seems to be a simple proportional relationship between IRV and schedule fee and between IRV and CPT RV.

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Gastroenterology are set out in Table 2.1 together with associated standard deviations and ranges.

The mean intra service time was 39 minutes and the mean total time was 61 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

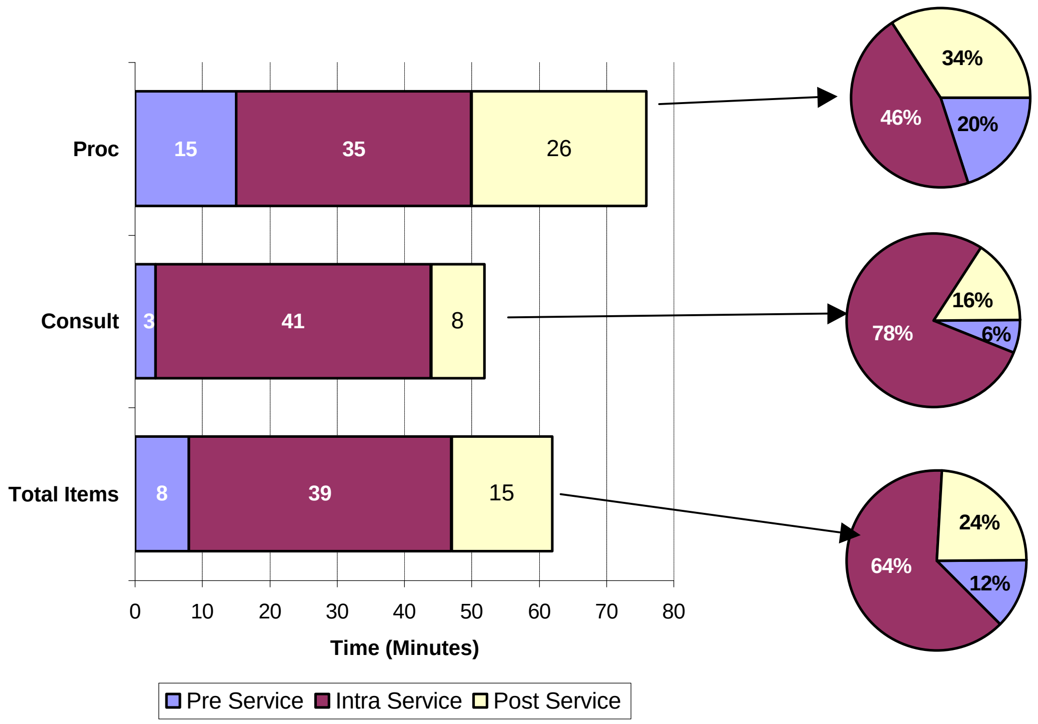
Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	7.6	38.8	14.7	61.1
SD	8	22	13	33
Min	2	0	2	10
Max	45	75	45	140

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1

Average Times **Proportion of Time**



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	15.3	34.8	26.1	76.2
Consultation Items	3.2	41.1	8.2	52.5
Total Items	7.6	38.8	14.7	61.1

Gastroenterology's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Gastroenterology's intra time estimates to the observed procedure times was 151.0%. This implies a strong tendency by this Consensus Group to over estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Gastroenterology are set out in Table 3.1 together with associated standard deviations and ranges.

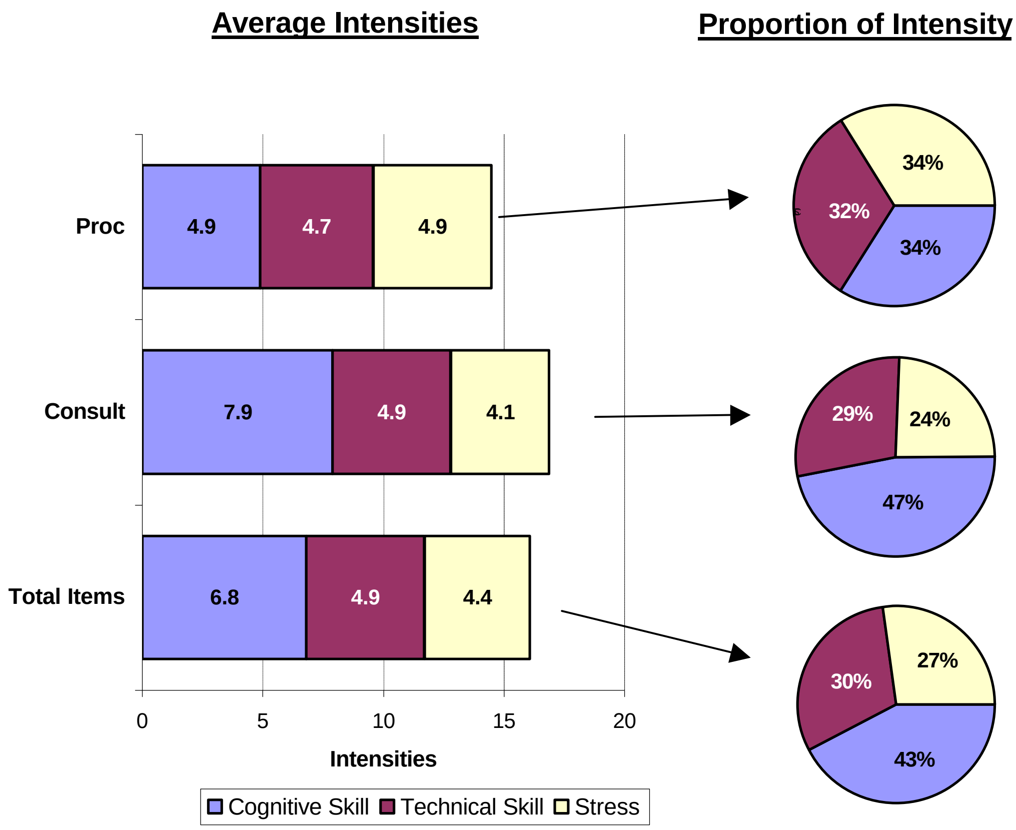
The mean ratings were 6.8 for cognitive skill, 4.9 for technical skill and 4.4 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	6.8	4.9	4.4	16.1
SD	2.3	1.4	1.7	4.8
Min	0.7	0.7	0.7	2.1
Max	9.8	8.0	8.0	24.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	4.9	4.7	4.9	14.5
Consultation Items	7.9	4.9	4.1	16.9
Total Items	6.8	4.9	4.4	16.1

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given essentially the same average rank as the consultation items (Sum of ranks test not significant).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	33	1	91	44.9
Consultation	58	5	90	46.6
Total	91	1	91	46.0

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Gastroentology Consensus Group assessed 78 link items. These comprised all 58 of their consultation items and 20 of the 33 procedure items More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were not significantly different from those given to non-link items.

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	58	5	90	46.6
Procedure-Link	20	1	86.5	44.1
Total Link	78	1	90	46.0
Non-Link (Procedure)	13	7	91	46.0
Total	91	1	91	46.0

Good maps of Gastroenterology's items to CPT were available for 12 of their 91 items. A breakdown of the ranks given to these good map items and to the poor/non map items is set out in Table 4.3. The ranks given to the good map items were not significantly different from those given to the poor/non map items. This means that good map items (i.e. potential core items) are well spread throughout the ranks.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	12	3	85	51.7
Poor/Non Map	79	1	91	45.1
Total	91	1	91	46.0

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analyzed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Gastroenterology is 1 to 53.

By dividing imputed relative values by time we can impute <u>relative</u> rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 2.7. Depending on both variations in intensity and on variations in the composition of times (different weightings for pre: intra: post), the range in relative rates of pay is 1 to 4.9

These figures are consistent with the medians observed for specialties examined so far[3]. Note that if one item (MBS Item 12533) is removed, the 4.9 ratio is reduced to 2.9 and the 2.7 ratio is reduced to 2.4. In terms of deviations in rates of pay, there shouldn't be any major difficulty in aligning Gastroenterology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non link items and between Good Map Items and Poor/No Map Items in terms of imputed relative value (IRV) are set out in Table 5.1.

The consultation items were given imputed relative values that did not differ significantly from those given to the procedure items. There were no significant differences between the imputed relative values given to link items and non-link items, nor between those given to good map items and poor/no map items.

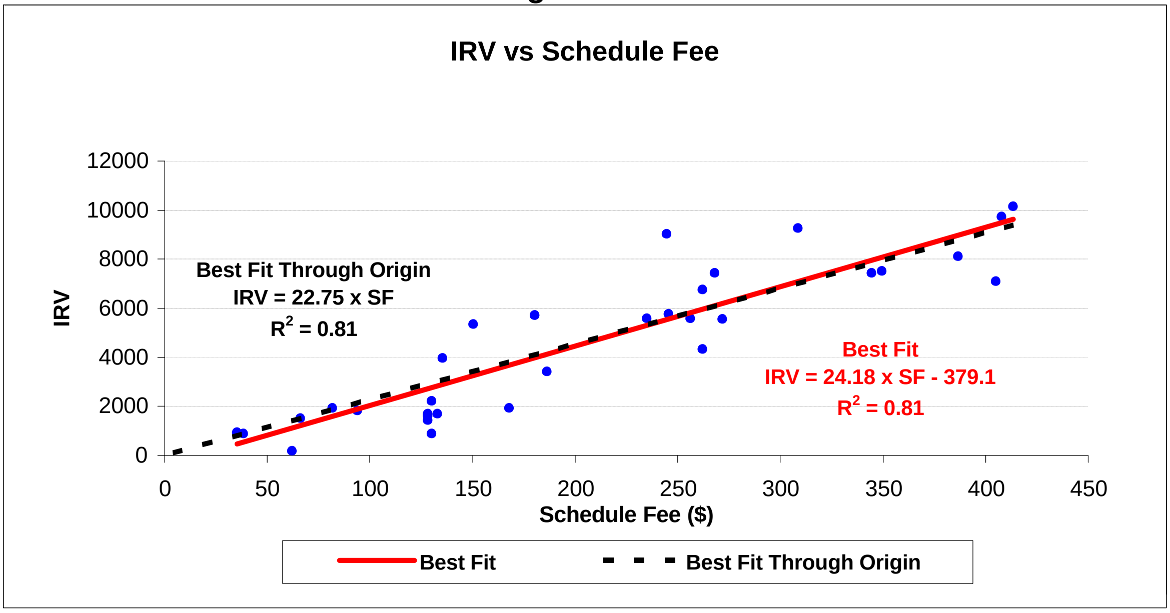
Table 5.1

Type of Item	Number Reviewed	IRVs				
		Mean	±	SD	Low	High
Consultation	58	4265	±	2424	822.0	8557.5
Procedure	33	4615	±	3002	191.5	10140.0
Link	78	4392	±	2638	822.0	10140.0
Non-link	13	4388	±	2740	191.5	8109.0
Good Map	12	3873	±	2947	942.0	9262.5
Poor/No Map	79	4471	±	2598	191.5	10140.0
Total	91	4392	±	2637	191.5	10140.0

A plot of Gastroenterology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is good ($R^2 = 0.81$)[4] and consistent with a straight line relationship through the origin.

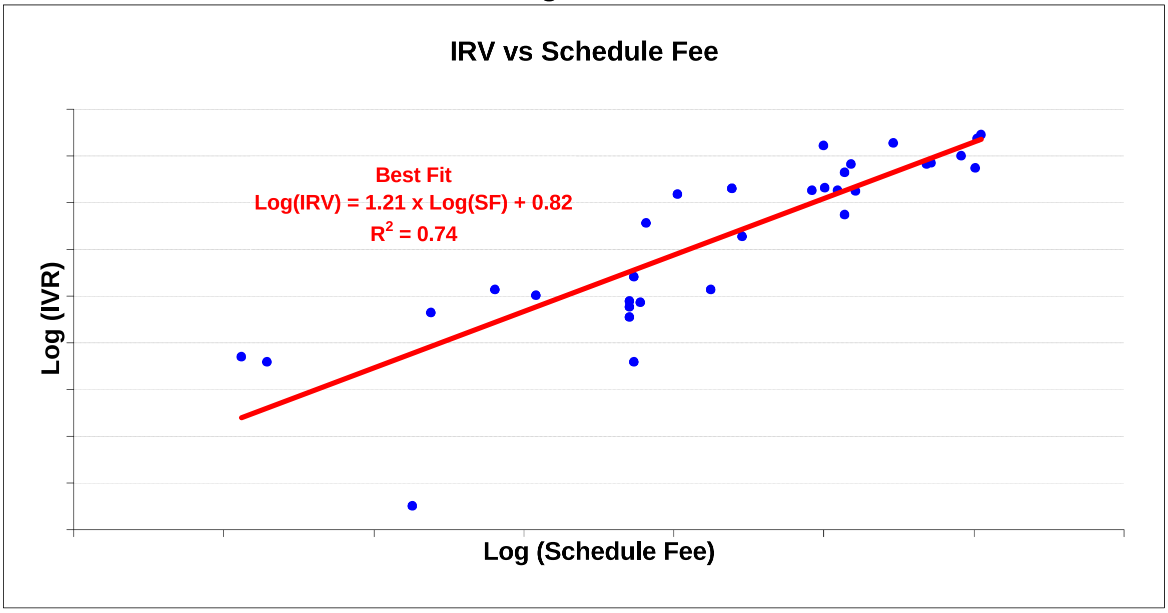
[4] An R^2 value of 0.81 means that the line explains 81% of the variation.

Figure 5.1



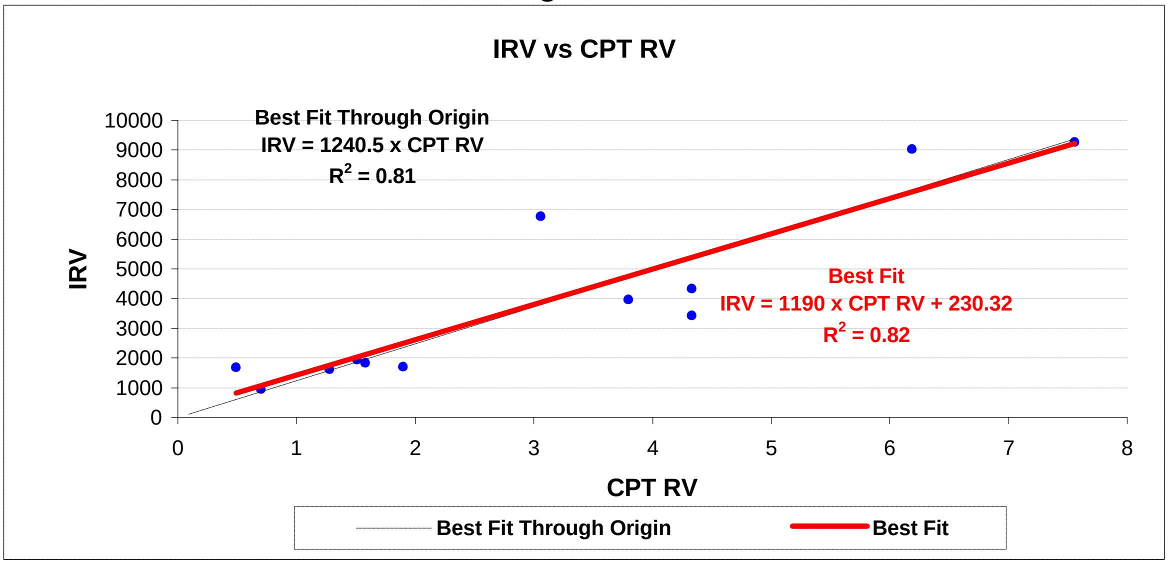
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit explains 74% of the variation as against 81% previously. When the outlier, MBS Item 12533, is removed the fit improves to 77%.

Figure 5.2



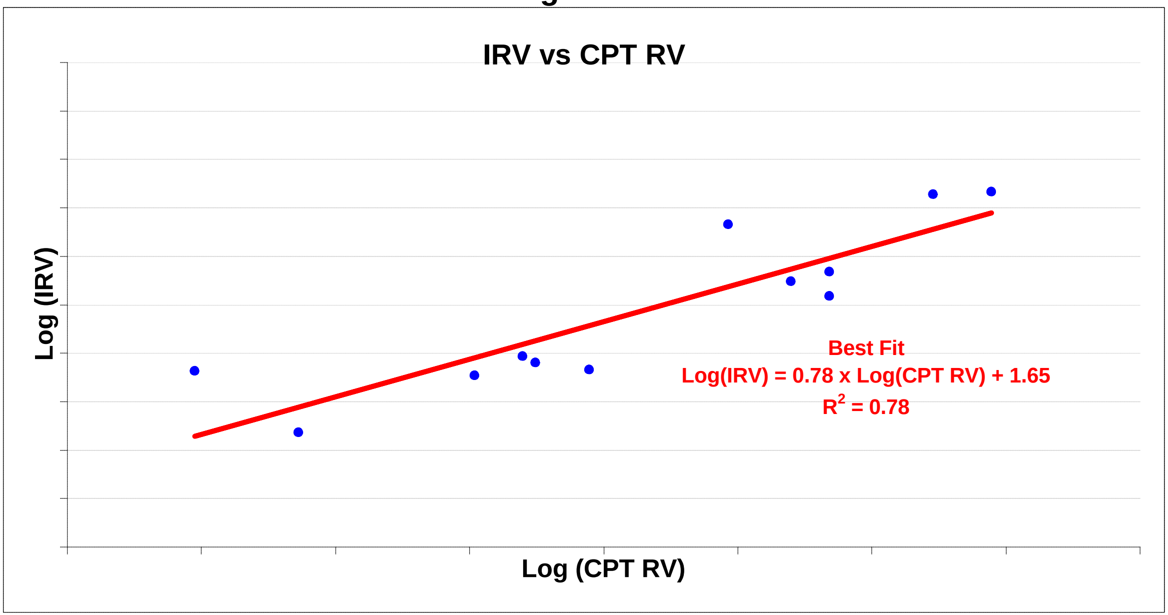
A plot of Gastroenterology's IRVs against CPT RV is set out in Figure 5.3. The fit is good (R^2 = 0.82) and the results are consistent with a simple proportional relationship between the scales.

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit explains 78% of the variation as against 82% previously.

Figure 5.4



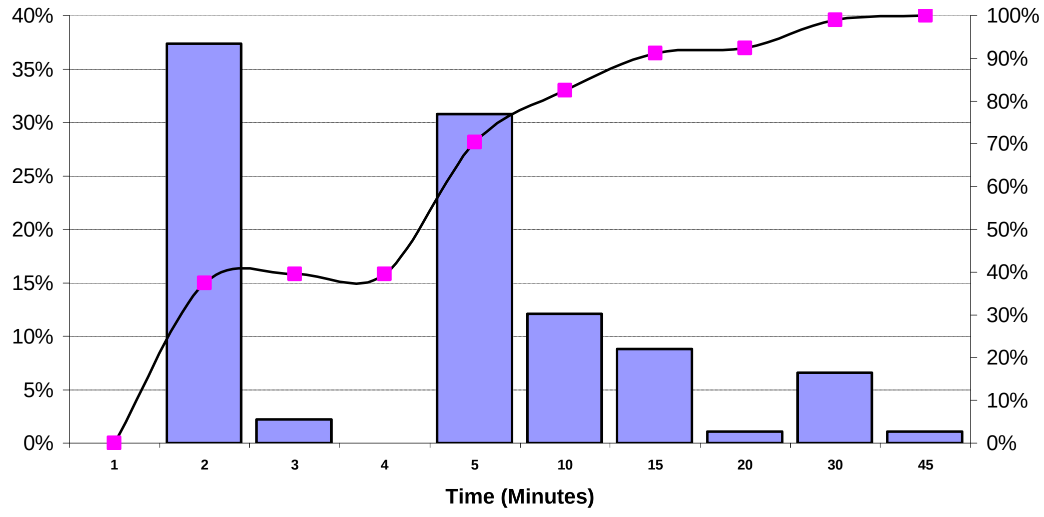
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	0	0.0%	0.0%
2	34	37.4%	37.4%
3	2	2.2%	39.6%
4	0	0.0%	39.6%
5	28	30.8%	70.3%
10	11	12.1%	82.4%
15	8	8.8%	91.2%
20	1	1.1%	92.3%
30	6	6.6%	98.9%
45	1	1.1%	100.0%
Total	91	100.0%	

Number of missing values = 0

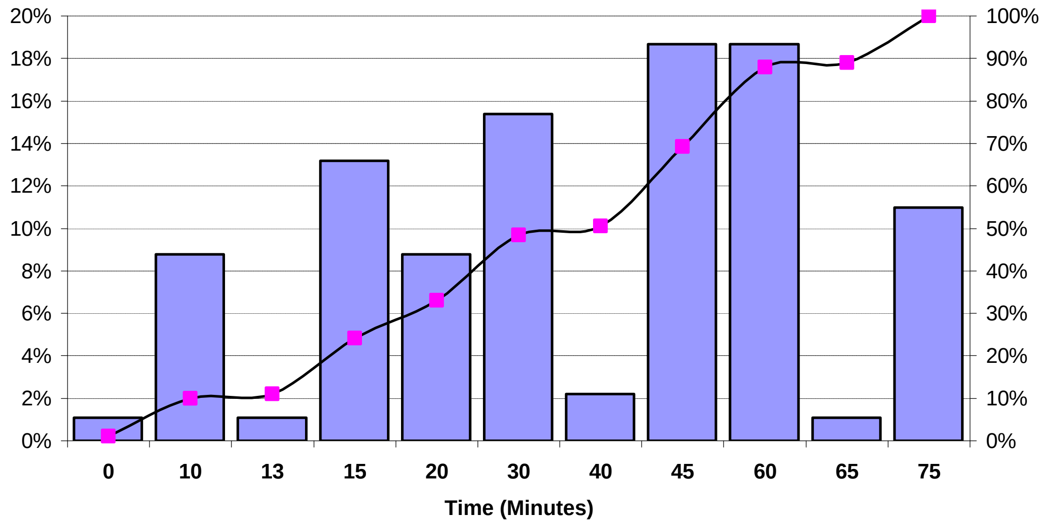


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	1.1%	1.1%
10	8	8.8%	9.9%
13	1	1.1%	11.0%
15	12	13.2%	24.2%
20	8	8.8%	33.0%
30	14	15.4%	48.4%
40	2	2.2%	50.5%
45	17	18.7%	69.2%
60	17	18.7%	87.9%
65	1	1.1%	89.0%
75	10	11.0%	100.0%
Total	91	100.0%	

Number of missing values = 0

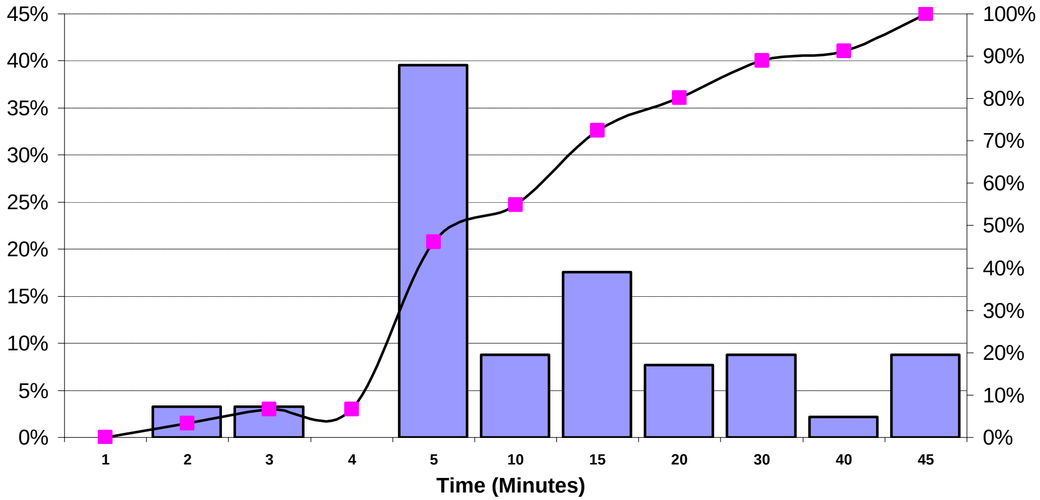


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	0	0.0%	0.0%
2	3	3.3%	3.3%
3	3	3.3%	6.6%
4	0	0.0%	6.6%
5	36	39.6%	46.2%
10	8	8.8%	54.9%
15	16	17.6%	72.5%
20	7	7.7%	80.2%
30	8	8.8%	89.0%
40	2	2.2%	91.2%
45	8	8.8%	100.0%
Total	91	100.0%	

Number of missing values = 0



COMPARISON OF GASTROENTEROLOGY (GAST) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x GAST/OTE
	ID	Type	Definition of Time		GAST	OTE	
OPERATION TIME (OPT) *	H1	Priv	Op Start to Op End	14	39.5	19.3	204.4
	H4	Priv	Op Start to Op End	8	36.9	15.0	246.4
	H6	Priv	Op Start to Op End	0			
	H8	Priv	Surgeon Start to Drapes Removed	5	35.0	23.2	151.0
	H9A	Priv	Inpatient, Surgery Start to Surgery Finish	11	43.6	27.5	158.6
	H9B	Day	Day Surgery, Surgery Start to Surgery Finisl	6	36.7	25.9	141.5
	H10	Priv	Op Start to Op End	5	28.6	15.0	190.7
	H11	Priv	Knife to Skin - Application of Dressing	3	30.0	31.0	96.8
	H13	Priv	Surgeon Start to Surgeon Finish	7	38.6	17.8	216.3
	H15	Priv	Op Start to Op End	14	37.7	15.7	240.7
	H16	Pub	Proc Start to Proc End	12	31.3	32.1	97.4
	H17	Pub	Surgical Start to Surgical End	7	33.6	33.6	100.0
	H18	Priv	Proc Start to Proc End	17	40.2	22.1	181.6
	H19	Pub	Positioning to Dressings Applied	8	30.6	31.1	98.6
	H20	Pub	Preparation/Positioning to End Dressings	16	37.2	25.7	144.5
	APHA	Priv	Procedure Time	8	34.4	27.2	126.3
	CANS	Pub & Priv	Op Start to Op Finish	19	38.7	29.2	132.5
	Deloitte	Pub & Priv	Procedure Time	9	36.4	22.3	163.2
OPERATION TIME 2 (OPT 2)	H8	Priv	Surgeon Start to Xfer from OR	5	35.0	24.8	141.1
	H13	Priv	Surgeon Start to Xfer from OR	8	38.8	22.2	174.5
	H15	Priv	Op Start to Recovery Admission	14	37.7	17.4	217.4
	H16	Pub	Proc Start to Recovery Admission	11	33.2	37.6	88.3
	H17	Pub	Surgical Start to Xfer from OR	8	36.9	37.7	97.7
	H18	Priv	Proc Start to Xfer from OR	18	40.4	26.6	151.8
	H19	Pub	Positioning to Ex Theatre	7	30.7	31.8	96.7
	H20	Pub	Preparation/Positioning to Admit Recovery/I	16	37.2	29.9	124.2
	CANS	Pub & Priv	Operation Start to Anaesthetist Finis	18	39.2	32.9	119.2
ANAESTHETIC TIME (OAT)	MBS	Pub & Priv	Anaesthetic Time	28	39.0	49.8	78.4
	H1	Priv	Anaesthetic Start to Op End	14	39.5	23.2	170.1
	H4	Priv	Anaesthetic Start to Op End	10	38.0	32.8	116.0
	H5	Priv	Anaesthetic Start to Surgery End	4	37.5	22.3	168.5
	H6	Priv	Anaesthetic Start to Op End	0			
	H8	Priv	Patient in Theatre to Drapes Removed	5	35.0	27.2	128.8
	H9A	Priv	Inpatient in A. Bay to Surgery Finish	11	43.6	38.5	113.4
	H9B	Day	Day Surgery, Anaesthetist Start to Surgery F	7	32.9	33.1	99.2
	H10	Priv	Anaesthetic Start to Op End	7	31.1	24.9	125.2
	H13	Priv	Anaesthetic Start to Surgeon End	8	38.8	25.9	149.5
	H15	Priv	Anaesthetic Start to Op End	14	37.7	19.5	193.9
	H16	Pub	Anaesthetic Start to Proc End	14	34.3	42.2	81.2
	H17	Pub	Anaesthetic Start to Surgical End	7	40.0	47.5	84.2
	H18	Priv	Anaesthetic Start to Proc End	17	40.2	26.6	150.9
	H19	Pub	Anaesthetic Start to Dressings Applied	7	30.7	38.8	79.2
	H20	Pub	Anaesthetist Start to End Dressings	16	37.2	33.3	111.6
	CANS	Pub & Priv	Anaesthetist Start to Operation Finish	19	38.7	31.7	121.9
	Deloitte	Pub & Priv	Anaesthetic Time	9	36.4	28.4	128.1
ANAESTHETIC TIME 2 (OAT 2)	H8	Priv	Patient in Theatre to Xfer from OR	5	35.0	28.8	121.5
	H11	Priv	Anaesthetic Start to Xfer to Recovery	3	30.0	37.0	81.1
	H12	Pub	Anaesthetic Start to Xfer to Recovery	5	35.0	38.8	90.3
	H13	Priv	Anaesthetic Start to Xfer from OR	8	38.8	28.3	136.9
	H14	Pub	Anaesthetic Start to Recovery Admission	21	40.2	41.3	97.5
	H15	Priv	Anaesthetic Start to Recovery Admission	14	37.7	21.1	178.5
	H16	Pub	Anaesthetic Start to Recovery Admission	14	34.3	46.7	73.4
	H17	Pub	Anaesthetic Start to Xfer from OR	7	40.0	54.1	74.0
	H18	Priv	Anaesthetic Start to Xfer from OR	17	40.2	31.6	127.2
	H19	Pub	Anaesthetic Start to Ex Theatre	7	30.7	41.4	74.3
	H20	Pub	Anaesthetist Start to Admit Recovery/ICU	16	37.2	37.5	99.1
	CANS	Pub & Priv	Anaesthetist Start to Anaesthetist Finis	19	38.7	35.8	108.1
TIME IN THEATRE (THT)	H2	Priv	Total Time in Theatre	16	37.7	32.8	114.9
	H3	Priv	Total Time in Theatre	4	33.8	15.2	222.2
	H7	Day	Total Time in Theatre	7	33.6	12.1	277.7
	H11	Priv	Dress, scrub etc. to Xfer to Recovery	3	30.0	52.7	57.0
	H15	Priv	Theatre Reception to Recovery Admission	14	37.7	26.7	141.5
	H19	Pub	In Op Suite to Ex Theatre	7	30.7	57.8	53.2
	C'mix Pub	Pub	Casemix Public Theatre Time	23	36.7	26.3	140.0
	C'mix Priv	Priv	Casemix Private Theatre Time	26	38.6	24.7	156.0
	C'mix Oth	Day & Othe	Casemix Other Theatre Time	12	41.7	21.5	194.3
	WA	Priv	WA Group Total Time in Theatre	23	37.7	28.0	134.6

* **Median ratio of GAST intra time estimates to OPT**
(excluding H4, H6, H9A, H9B and H11)
Unweighted = 151.0 %

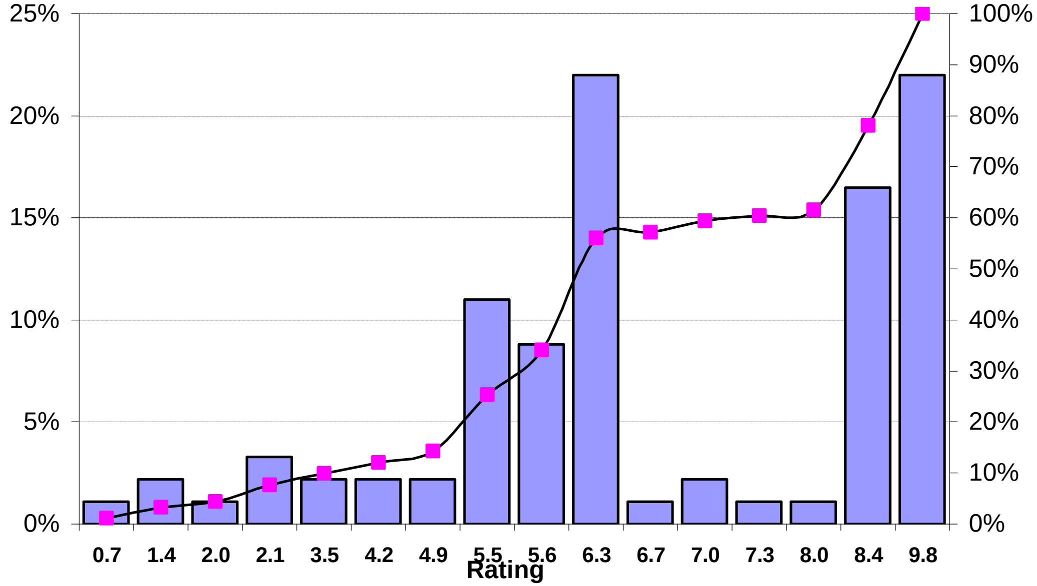
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
0.7	1	1.1%	1.1%
1.4	2	2.2%	3.3%
2.0	1	1.1%	4.4%
2.1	3	3.3%	7.7%
3.5	2	2.2%	9.9%
4.2	2	2.2%	12.1%
4.9	2	2.2%	14.3%
5.5	10	11.0%	25.3%
5.6	8	8.8%	34.1%
6.3	20	22.0%	56.0%
6.7	1	1.1%	57.1%
7.0	2	2.2%	59.3%
7.3	1	1.1%	60.4%
8.0	1	1.1%	61.5%
8.4	15	16.5%	78.0%
9.8	20	22.0%	100.0%
Total	91	100.0%	

Number of missing values = 0

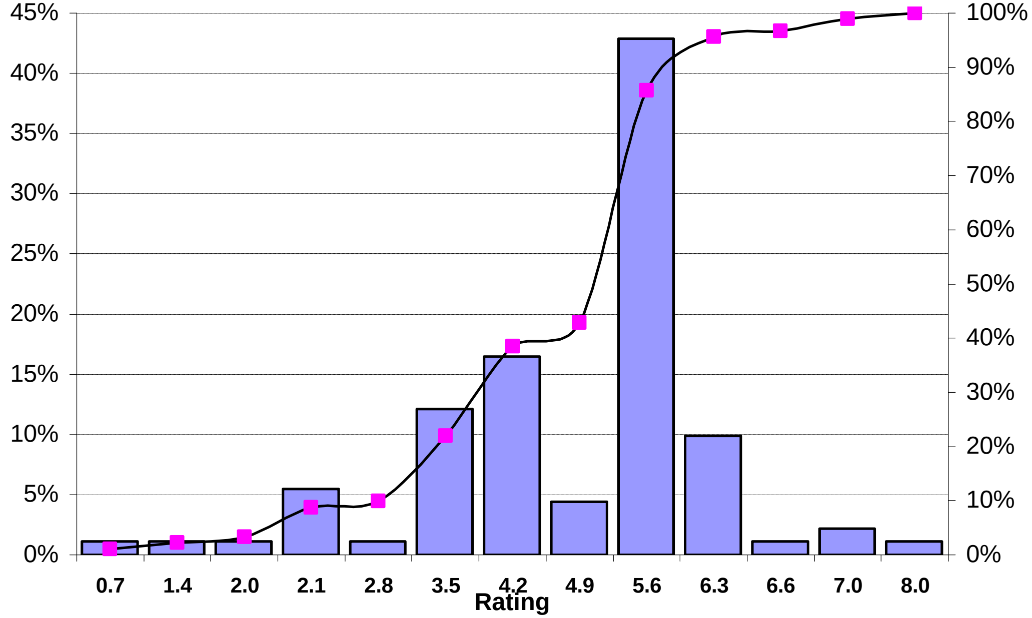


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
0.7	1	1.1%	1.1%
1.4	1	1.1%	2.2%
2.0	1	1.1%	3.3%
2.1	5	5.5%	8.8%
2.8	1	1.1%	9.9%
3.5	11	12.1%	22.0%
4.2	15	16.5%	38.5%
4.9	4	4.4%	42.9%
5.6	39	42.9%	85.7%
6.3	9	9.9%	95.6%
6.6	1	1.1%	96.7%
7.0	2	2.2%	98.9%
8.0	1	1.1%	100.0%
Total	91	100.0%	

Number of missing values = 0

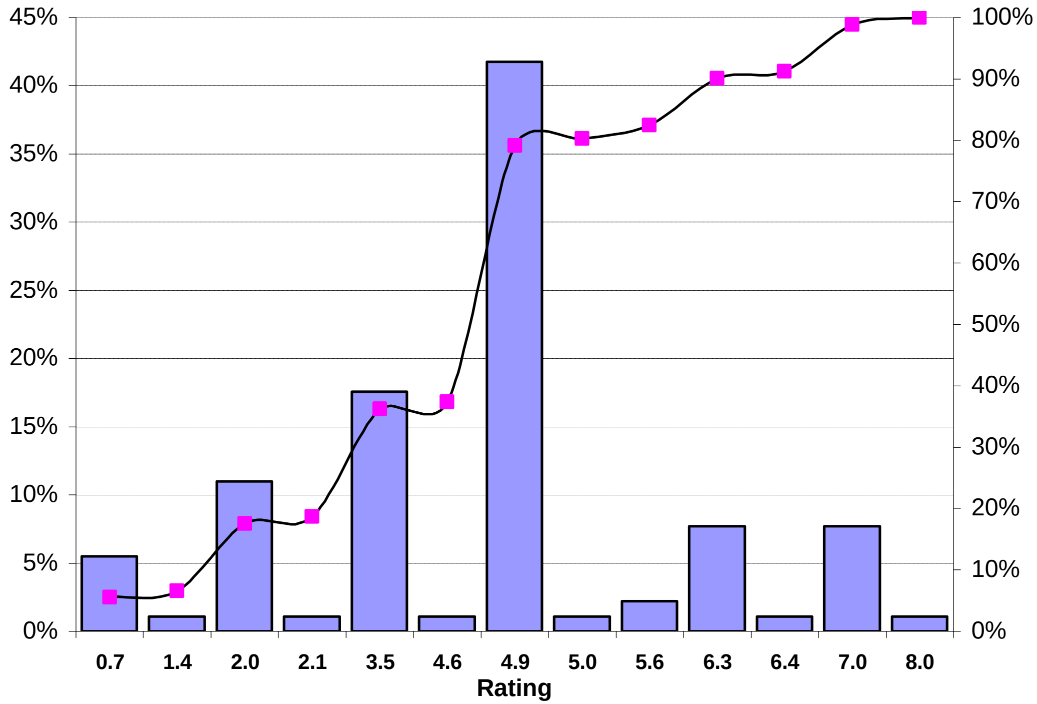


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
0.7	5	5.5%	5.5%
1.4	1	1.1%	6.6%
2.0	10	11.0%	17.6%
2.1	1	1.1%	18.7%
3.5	16	17.6%	36.3%
4.6	1	1.1%	37.4%
4.9	38	41.8%	79.1%
5.0	1	1.1%	80.2%
5.6	2	2.2%	82.4%
6.3	7	7.7%	90.1%
6.4	1	1.1%	91.2%
7.0	7	7.7%	98.9%
8.0	1	1.1%	100.0%
Total	91	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Gastroenterology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med	2	0	2
Oral and Maxillo-facial Surger	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	20	58	78
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	22	22
Orthopaedic surgery	0	58	58
Paediatric Surgery	0	15	15
Plastic Surgery	0	0	0
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	0	0	0
ENT	0	3	3
Anaesthesia	0	58	58
Dermatology	0	6	6
Peadiatric & Thoracic Medicir	0	58	58
General Medicine	5	48	53
Cardiology, Renal, ICU	1	0	1
Radiation, Oncology	0	58	58
Neurology	0	58	58
Haematology, Medical Oncolo	0	0	0
Psychiatry	0	53	53
Total	20	58	78

Glossary

Consultation Iter	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Neurology

Summary Status Report

October 25, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Neurology Consensus Group.

The Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 84 items. These comprised 19 procedure items and 65 consultation items.

Analysis of this information showed:

- The median ratio of Neurology's intra time estimates to NCCH's Theatre Times Database observed procedure times was 49.3%. This is low because technicians assist in 9 (47%) of the 19 items. These items have all been given zero intra times

- The Group gave very much higher ranks to consultation items than to procedure items, significantly higher ranks to link items than to non-link items and significantly lower ranks to good map items than to poor/no-map items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 2.0. This is lower than the median observed for specialties so far examined. It could be difficult to align Neurology's rankings and ratings with those of the other groups, particularly Psychiatry.

- Consultation items were given very much greater imputed relative values[1] than procedure items ($p < 0.001$).

- Link items were given significantly higher imputed relative values than non link items while good map items were given significantly

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Neurology are set out in Table 2.1 together with associated standard deviations and ranges.

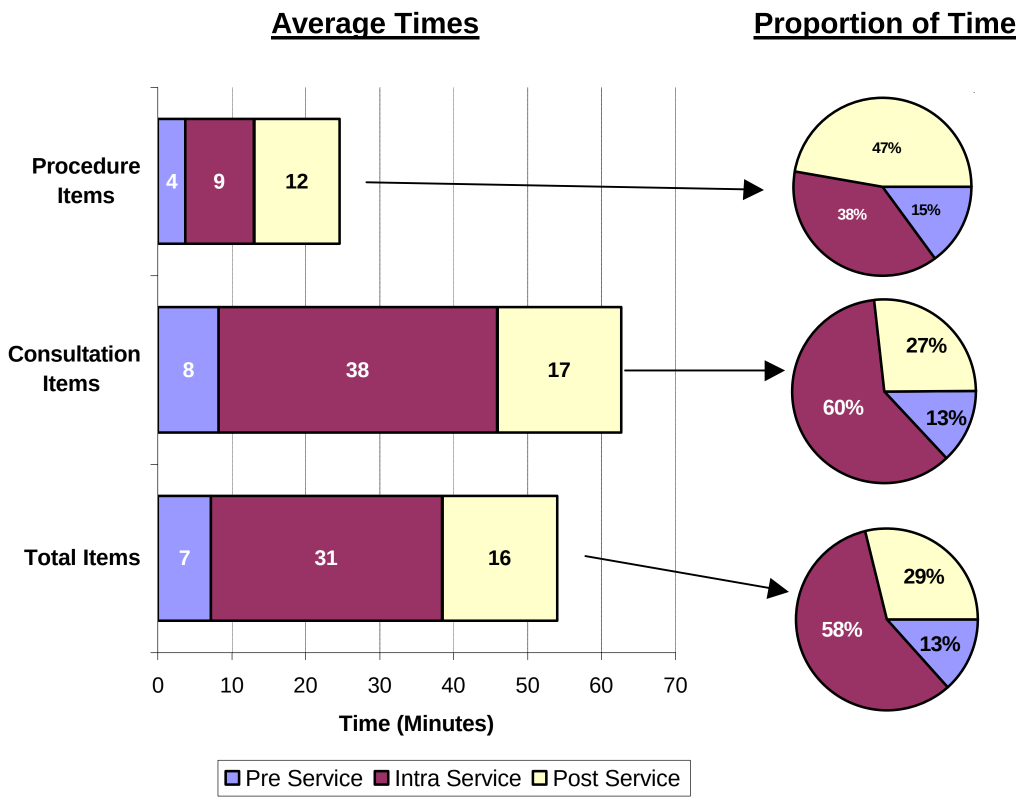
The mean intra service time was 31 minutes and the mean total time was 54 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	7	31	16	54
SD	8	24	10	35
Min	1	0	3	6
Max	28	75	40	133

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	3.8	9.3	11.6	24.7
Consultation Items	8.2	37.7	16.8	62.7
Total Items	7.2	31.3	15.6	54.1

Neurology's procedure intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies. The median ratio of Neurology's intra time estimates to the observed procedure times was 49.3%. The reason that this is low is that technicians assist in 9 (47%) of the 19 items. These items have all been given zero intra times. Details are provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Neurology are set out in Table 3.1 together with associated standard deviations and ranges.

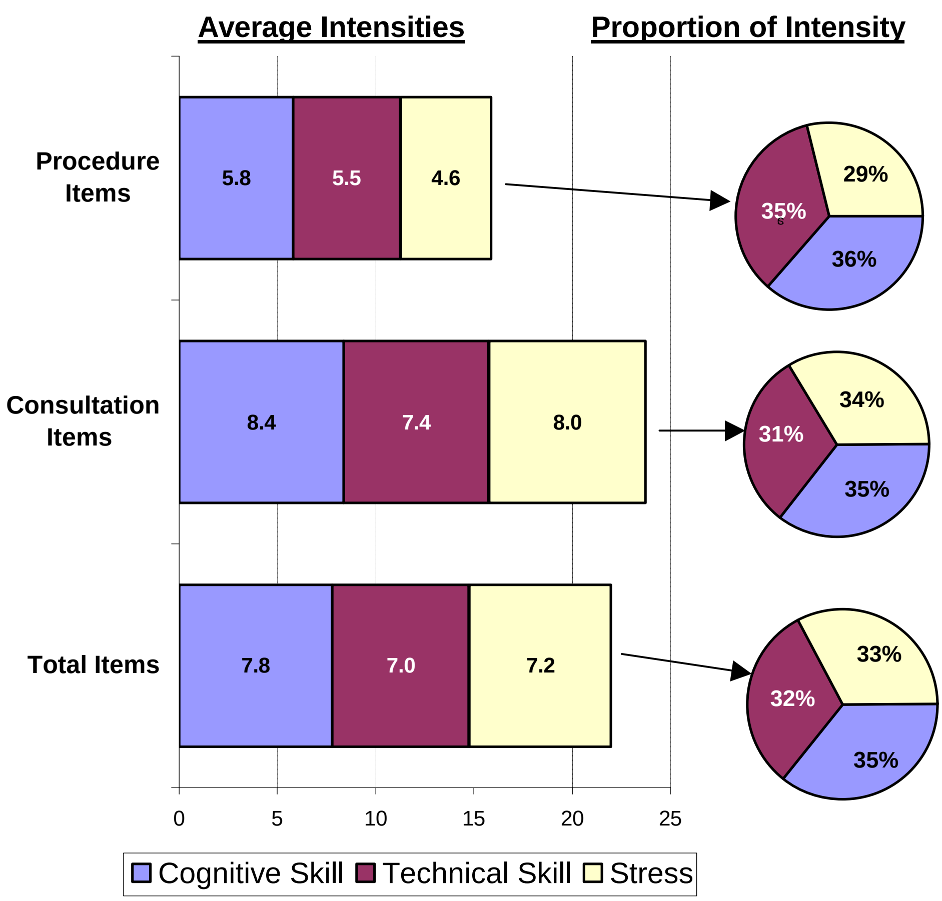
The mean ratings were 7.8 for cognitive skill, 7.0 for technical skill and 7.2 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	7.8	7.0	7.2	22.0
SD	1.5	1.3	1.8	4.2
Min	3.0	3.0	2.0	9.0
Max	9.0	8.0	8.0	25.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	5.8	5.5	4.6	15.9
Consultation Items	8.4	7.4	8.0	23.8
Total Items	7.8	7.0	7.2	22.0

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (that is time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The consultation items were given very much higher ranks than the procedure items (sum of ranks test, $p < 0.001$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	19	33	84	66.29
Consultation	65	1	77	35.55
Total	84	1	84	42.50

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Neurology Consensus Group assessed 73 link items. These comprised all 65 of their consultation items and 8 of the 19 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were significantly higher than those given to non-link items (sum of ranks test, $p < 0.05$).

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation-Link	65	1	77	35.55
Procedure-Link	8	65	84	76.94
Total Link	73	1	84	40.08
Non-link (Procedure)	11	33	80.5	58.55
Total	84	1	84	42.50

Good maps of Neurology's items to CPT were available for 3 of their 84 items. A breakdown of the ranks given to these good map items and to the poor/no-map items is set out in Table 4.3. Good map items were ranked significantly lower than poor/no-map items ($p < 0.05$).

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	3	65	80.5	73.8
Poor/Non Map	81	1	84	41.3
Total	84	1	84	42.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Neurology is 1 to 44.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay for Neurology is 1 to 2.0. This remains unchanged when both variations in intensity and variations in the composition of times (pre: intra: post) are assessed.

These ranges in relative rates of pay are lower than the median observed for specialties examined so far[3]. In terms of deviations in rates of pay, it could be difficult to align Neurology's rankings and ratings with those of the other groups, particularly Psychiatry.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non-link items and between good map items and poor/no-map items in terms of imputed relative value (IRV) are set out in Table 5.1.

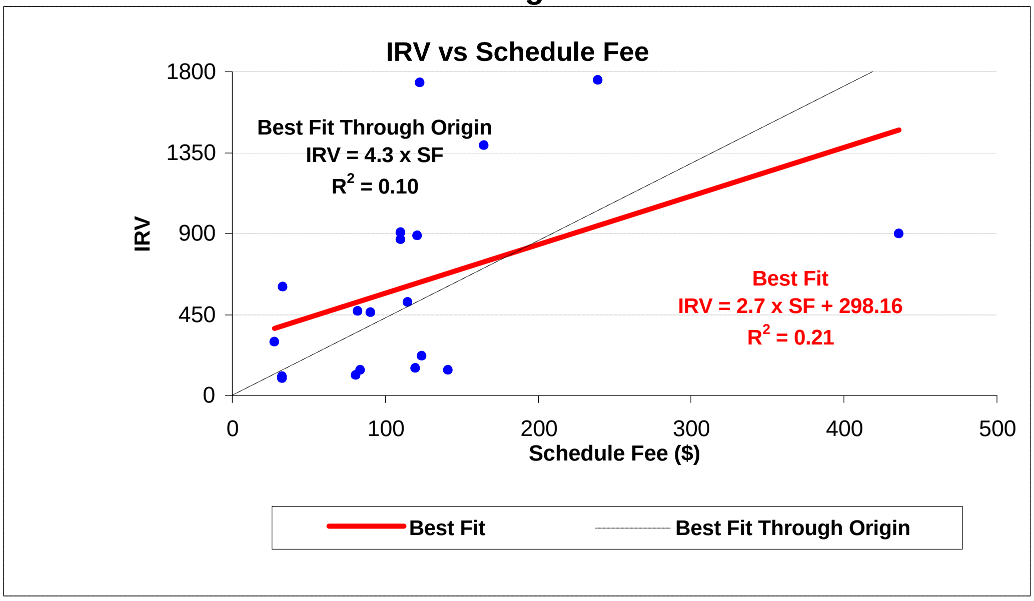
The consultation items were given very much greater imputed relative values than the procedure items (t tests, $p < 0.001$), the link items were given significantly higher imputed relative values than the non-link items (t tests, $p < 0.05$) and the good map items were given significantly lower imputed relative values than the poor/no-map items (t tests, $p < 0.05$).

Table 5.1

Type of Item	Number Reviewed	IRVs Mean ± SD		Low	High
Consultation	65	1969	± 1126	280	4256
Procedure	19	620	± 539	96	1755
Link	73	1781	± 1192	96	4256
Non-link	11	886	± 556	144	1755
Good Map	3	350	± 234	144	605
Poor/No Map	81	1713	± 1160	96	4256
Total	84	1664	± 1167	96	4256

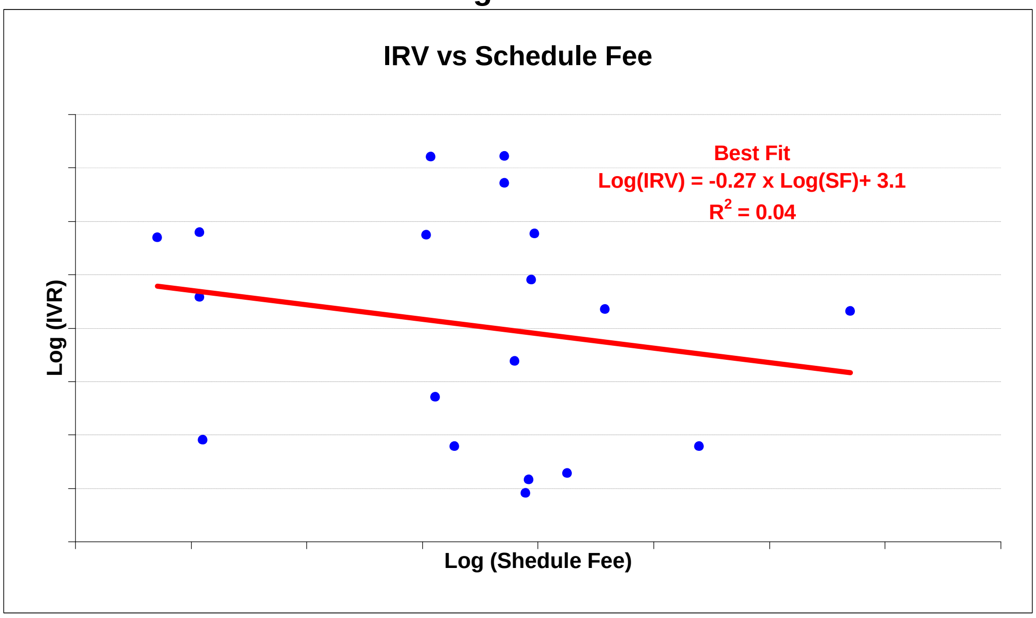
A plot of Neurology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is poor, explaining only 21% of the variation.

Figure 5.1



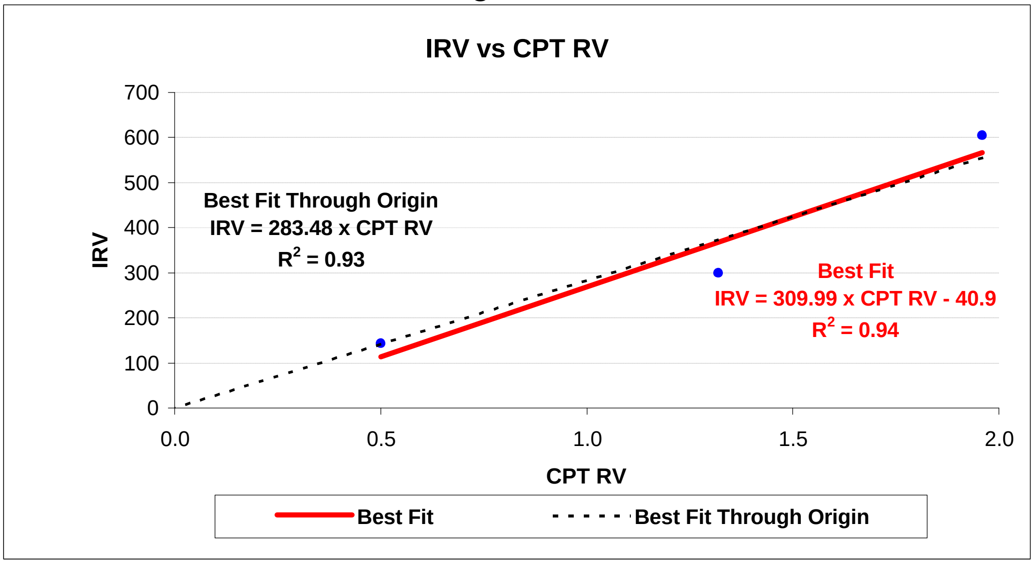
We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is extremely poor.

Figure 5.2



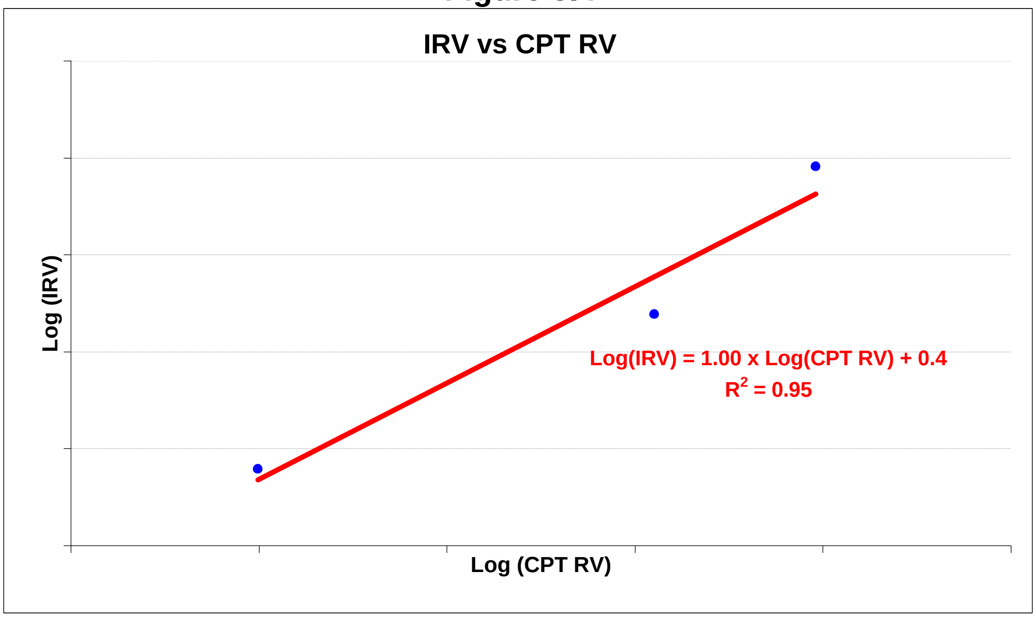
A plot of Neurology's IRVs against CPT RV is set out in Figure 5.3. The fit is good (R^2 = 94%), but there are only 3 items involved.

Figure 5.3



A log/log plot is also provided (Figure 5.4). The fit improves marginally from R^2 = 94% to R^2 = 95%.

Figure 5.4



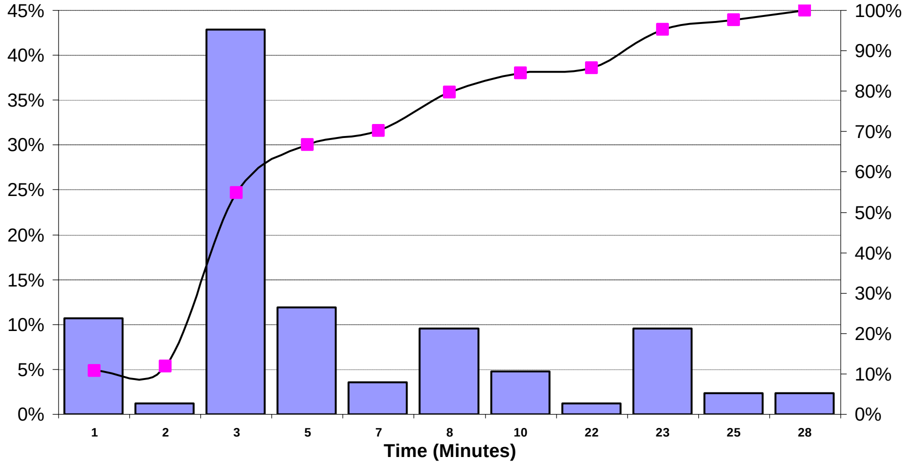
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	9	10.7%	10.7%
2	1	1.2%	11.9%
3	36	42.9%	54.8%
5	10	11.9%	66.7%
7	3	3.6%	70.2%
8	8	9.5%	79.8%
10	4	4.8%	84.5%
22	1	1.2%	85.7%
23	8	9.5%	95.2%
25	2	2.4%	97.6%
28	2	2.4%	100.0%
Total	84	100.0%	

Number of missing values = 0

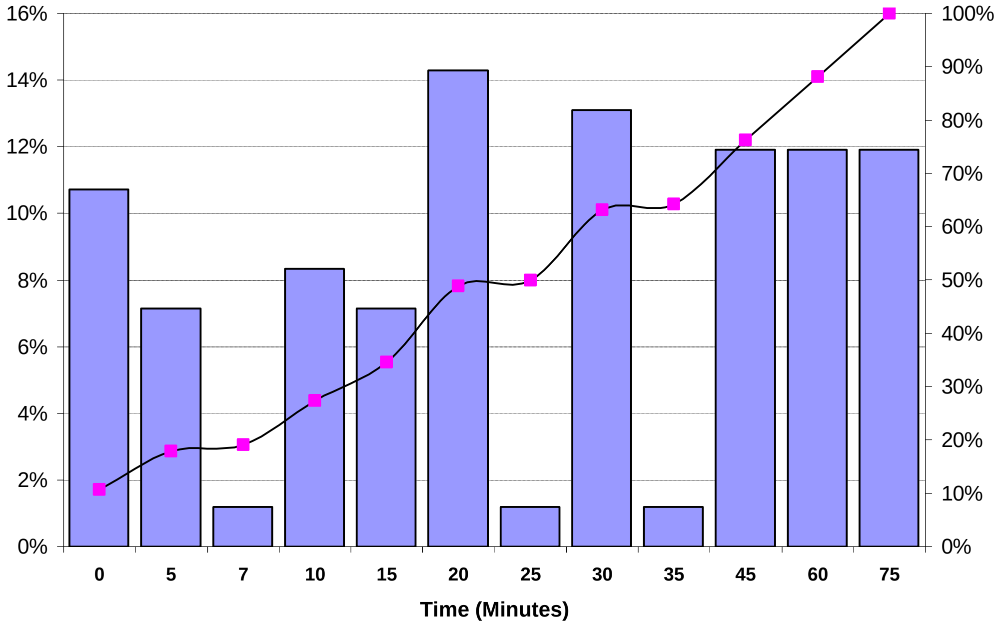


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	9	10.7%	10.7%
5	6	7.1%	17.9%
7	1	1.2%	19.0%
10	7	8.3%	27.4%
15	6	7.1%	34.5%
20	12	14.3%	48.8%
25	1	1.2%	50.0%
30	11	13.1%	63.1%
35	1	1.2%	64.3%
45	10	11.9%	76.2%
60	10	11.9%	88.1%
75	10	11.9%	100.0%
Total	84	100.0%	

Number of missing values = 0

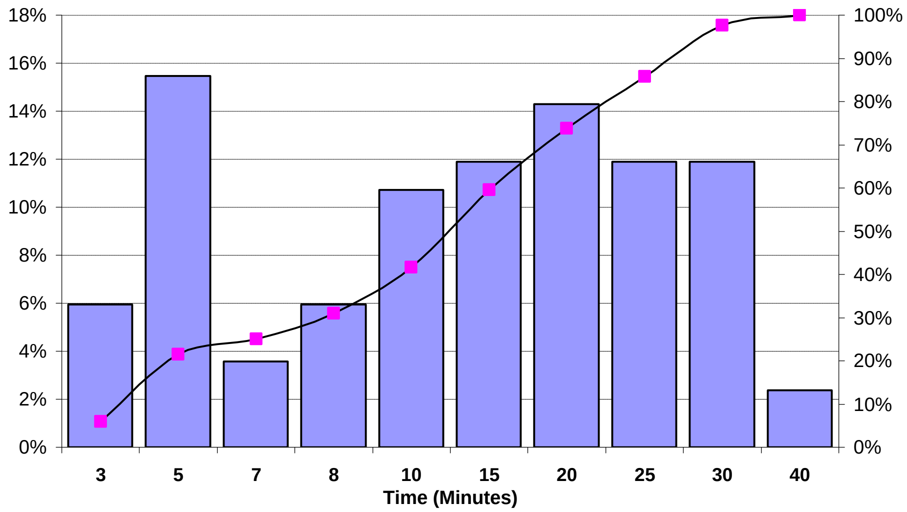


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
3	5	6.0%	6.0%
5	13	15.5%	21.4%
7	3	3.6%	25.0%
8	5	6.0%	31.0%
10	9	10.7%	41.7%
15	10	11.9%	59.5%
20	12	14.3%	73.8%
25	10	11.9%	85.7%
30	10	11.9%	97.6%
40	2	2.4%	100.0%
Total	84	100.0%	

Number of missing values = 0



COMPARISON OF NEUROLOGY (NEUR) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x NEUR/OTE
	ID	Type	Definition of Time		NEUR	OTE	
OPERATION TIME (OPT) *	H1	Priv	Op Start to Op End	0			
	H4	Priv	Op Start to Op End	0			
	H6	Priv	Op Start to Op End	0			
	H8	Priv	Surgeon Start to Drapes Removed	1	7	13.5	51.85
	H9A	Priv	Inpatient, Surgery Start to Surgery Finish	1	5	10	50
	H9B	Day	Day Surgery, Surgery Start to Surgery Finisl	1	5	5.43	92.08
	H10	Priv	Op Start to Op End	0			
	H11	Priv	Knife to Skin - Application of Dressing	0			
	H13	Priv	Surgeon Start to Surgeon Finish	0			
	H15	Priv	Op Start to Op End	0			
	H16	Pub	Proc Start to Proc End	0			
	H17	Pub	Surgical Start to Surgical End	0			
	H18	Priv	Proc Start to Proc End	1	7	15	46.67
	H19	Pub	Positioning to Dressings Applied	0			
	H20	Pub	Preparation/Positioning to End Dressings	0			
	APHA	Priv	Procedure Time	0			
	CANS	Pub & Priv	Op Start to Op Finish	0			
	Deloitte	Pub & Priv	Procedure Time	0			
OPERATION TIME 2 (OPT 2)	H8	Priv	Surgeon Start to Xfer from OR	1	7	14.5	48.28
	H13	Priv	Surgeon Start to Xfer from OR	0			
	H15	Priv	Op Start to Recovery Admission	0			
	H16	Pub	Proc Start to Recovery Admission	0			
	H17	Pub	Surgical Start to Xfer from OR	0			
	H18	Priv	Proc Start to Xfer from OR	1	7	15	46.67
	H19	Pub	Positioning to Ex Theatre	0			
	H20	Pub	Preparation/Positioning to Admit Recovery/I	1	5	20	25
	CANS	Pub & Priv	Operation Start to Anaesthetist Finis	0			
ANAESTHETIC TIME (OAT)	MBS	Pub & Priv	Anaesthetic Time	3	12.33	20	61.65
	H1	Priv	Anaesthetic Start to Op End	0			
	H4	Priv	Anaesthetic Start to Op End	0			
	H5	Priv	Anaesthetic Start to Surgery End	0			
	H6	Priv	Anaesthetic Start to Op End	0			
	H8	Priv	Patient in Theatre to Drapes Removed	1	7	13.5	51.85
	H9A	Priv	Inpatient in A. Bay to Surgery Finish	1	5	10	50
	H9B	Day	Day Surgery, Anaesthetist Start to Surgery F	1	5	20.57	24.31
	H10	Priv	Anaesthetic Start to Op End	0			
	H13	Priv	Anaesthetic Start to Surgeon End	0			
	H15	Priv	Anaesthetic Start to Op End	0			
	H16	Pub	Anaesthetic Start to Proc End	0			
	H17	Pub	Anaesthetic Start to Surgical End	0			
	H18	Priv	Anaesthetic Start to Proc End	1	7	15	46.67
	H19	Pub	Anaesthetic Start to Dressings Applied	0			
	H20	Pub	Anaesthetist Start to End Dressings	1	5	20	25
	CANS	Pub & Priv	Anaesthetist Start to Operation Finish	0			
	Deloitte	Pub & Priv	Anaesthetic Time	0			
ANAESTHETIC TIME 2 (OAT 2)	H8	Priv	Patient in Theatre to Xfer from OR	1	7	14.5	48.28
	H11	Priv	Anaesthetic Start to Xfer to Recovery	0			
	H12	Pub	Anaesthetic Start to Xfer to Recovery	0			
	H13	Priv	Anaesthetic Start to Xfer from OR	0			
	H14	Pub	Anaesthetic Start to Recovery Admission	0			
	H15	Priv	Anaesthetic Start to Recovery Admission	0			
	H16	Pub	Anaesthetic Start to Recovery Admission	0			
	H17	Pub	Anaesthetic Start to Xfer from OR	0			
	H18	Priv	Anaesthetic Start to Xfer from OR	1	7	15	46.67
	H19	Pub	Anaesthetic Start to Ex Theatre	0			
	H20	Pub	Anaesthetist Start to Admit Recovery/ICU	1	5	20	25
	CANS	Pub & Priv	Anaesthetist Start to Anaesthetist Finis	0			
TIME IN THEATRE (THT)	H2	Priv	Total Time in Theatre	0			
	H3	Priv	Total Time in Theatre	0			
	H7	Day	Total Time in Theatre	0			
	H11	Priv	Dress, scrub etc. to Xfer to Recovery	0			
	H15	Priv	Theatre Reception to Recovery Admission	0			
	H19	Pub	In Op Suite to Ex Theatre	0			
	C'mix Pub	Pub	Casemix Public Theatre Time	1	7	11	63.64
	C'mix Priv	Priv	Casemix Private Theatre Time	0			
	C'mix Oth	Day & Othe	Casemix Other Theatre Time	0			
	WA	Priv	WA Group Total Time in Theatre	0			

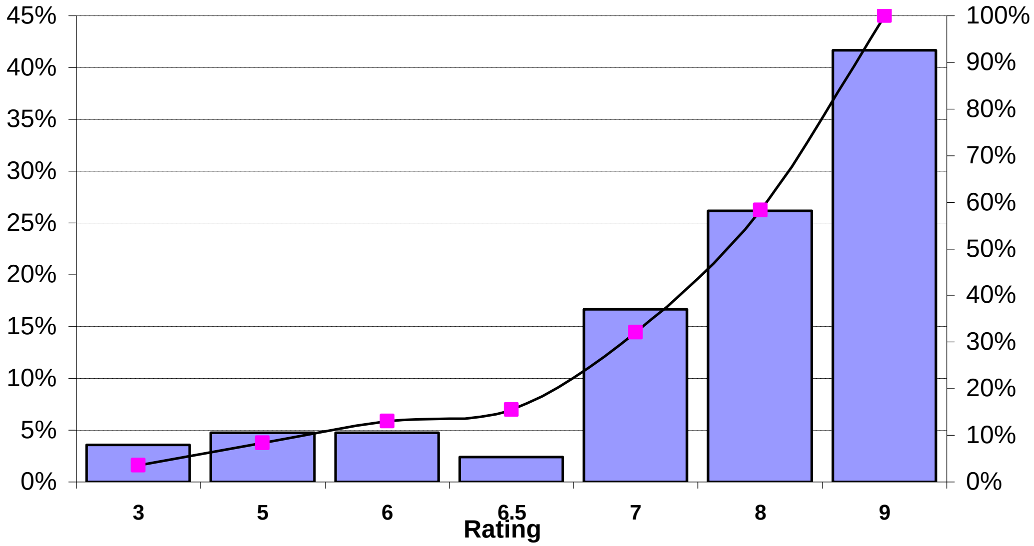
* **Median ratio of NEUR intra time estimates to OPT**
(excluding H4, H6, H9A, H9B and H11)
Unweighted = 49.3 %

Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
3	3	3.6%	3.6%
5	4	4.8%	8.3%
6	4	4.8%	13.1%
6.5	2	2.4%	15.5%
7	14	16.7%	32.1%
8	22	26.2%	58.3%
9	35	41.7%	100.0%
Total	84	100.0%	



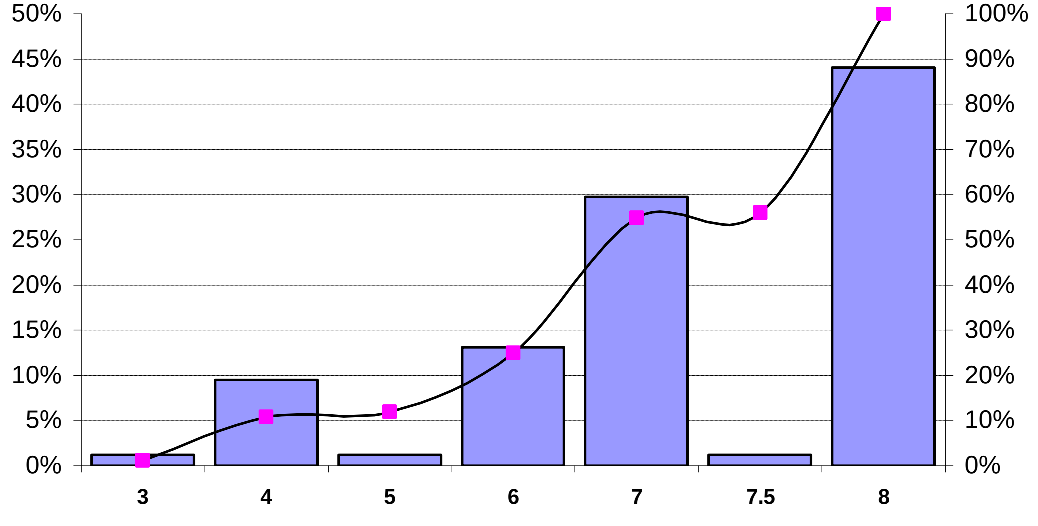
Number of missing values = 0

Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
3	1	1.2%	1.2%
4	8	9.5%	10.7%
5	1	1.2%	11.9%
6	11	13.1%	25.0%
7	25	29.8%	54.8%
7.5	1	1.2%	56.0%
8	37	44.0%	100.0%
Total	84	100.0%	

Number of missing values = 0

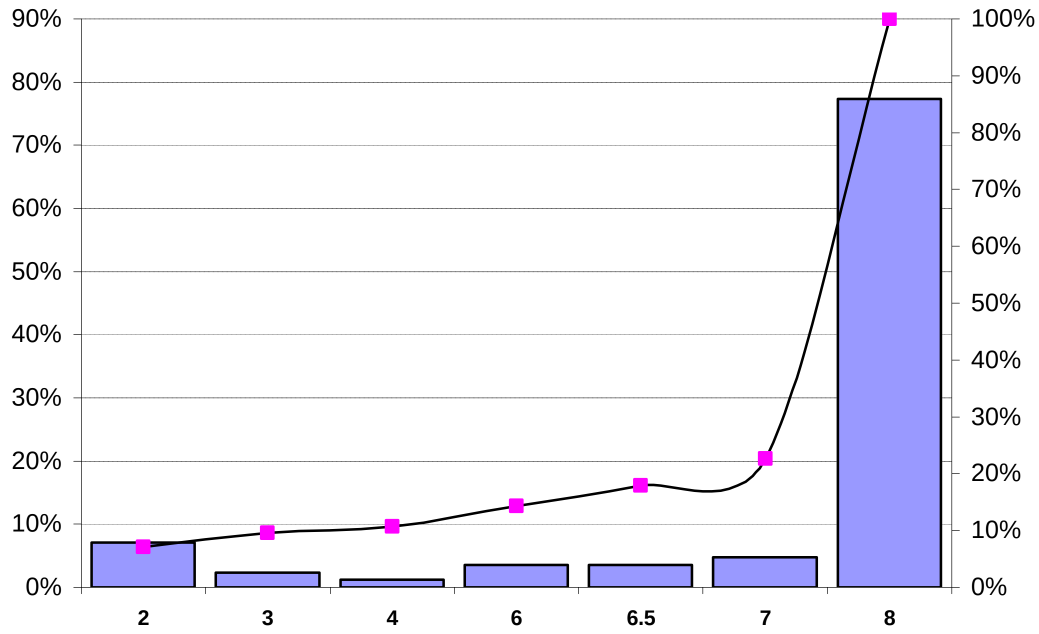


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
2	6	7.1%	7.1%
3	2	2.4%	9.5%
4	1	1.2%	10.7%
6	3	3.6%	14.3%
6.5	3	3.6%	17.9%
7	4	4.8%	22.6%
8	65	77.4%	100.0%
Total	84	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Neurology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	1	0	1
Oral and Maxillo-Facial Surgery	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	0	0	0
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	23	23
Orthopaedic Surgery	0	65	65
Paediatric Surgery	0	0	0
Plastic Surgery	0	11	11
Urology	0	0	0
Vascular Surgery	0	0	0
Ophthalmology	4	0	4
ENT	4	0	4
Anaesthesia	0	65	65
Dermatology	0	0	0
Paediatric / Thoracic Medicine	0	63	63
General Medicine	1	46	47
Cardiology, Renal, ICU	0	0	0
Radiation, Oncology	0	0	0
Gastroenterology	0	0	0
Haematology, Medical Oncolog	0	0	0
Psychiatry	0	54	54
Total	8	65	73

Glossary

Consultation Iter	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Clinical Haematology and Medical Oncology

Summary Status Report

November 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1 Overview

This document outlines the results of an examination of the information sent to the NCCH by the Clinical Haematology and Medical Oncology Consensus Group.

The Clinical Haematology and Medical Oncology Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 46 items. These comprised 24 procedure items and 22 consultation items.

Analysis of this information showed:

- The median ratio of Clinical Haematology and Medical Oncology's intra time estimates to NCCH's Theatre Times Database observed procedure times was 85.7%. This implies a tendency to under estimate intra times.

- The group gave significantly lower ranks to the procedure items than to the consultation items ($p < 0.01$).

- The ranks given to link items were not significantly different from those given to non-link items. Nor were the ranks given to the two potential core items significantly different from those given to the remaining items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 2.4. This is lower than the median observed for specialties so far examined. There could be some difficulty in aligning Clinical Haematology and Medical Oncology's rankings and ratings with those of the other groups.

- The imputed relative values[1] given to procedure items were significantly lower in relative (i.e. percentage) terms than those given to consultation items.

- There was no significant difference between the imputed relative values given to link items and those given to non-link items.

- There was no significant difference between the imputed relative values given to the two good map items and those given to the poor/no map items.

- The correlation between the imputed relative values for Clinical Haematology and Medical Oncology and schedule fee was reasonable ($R^2 = 73\%$). However it was largely influenced by one item.

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Clinical Haematology and Medical Oncology are set out in Table 2.1 together with associated standard deviations and ranges.

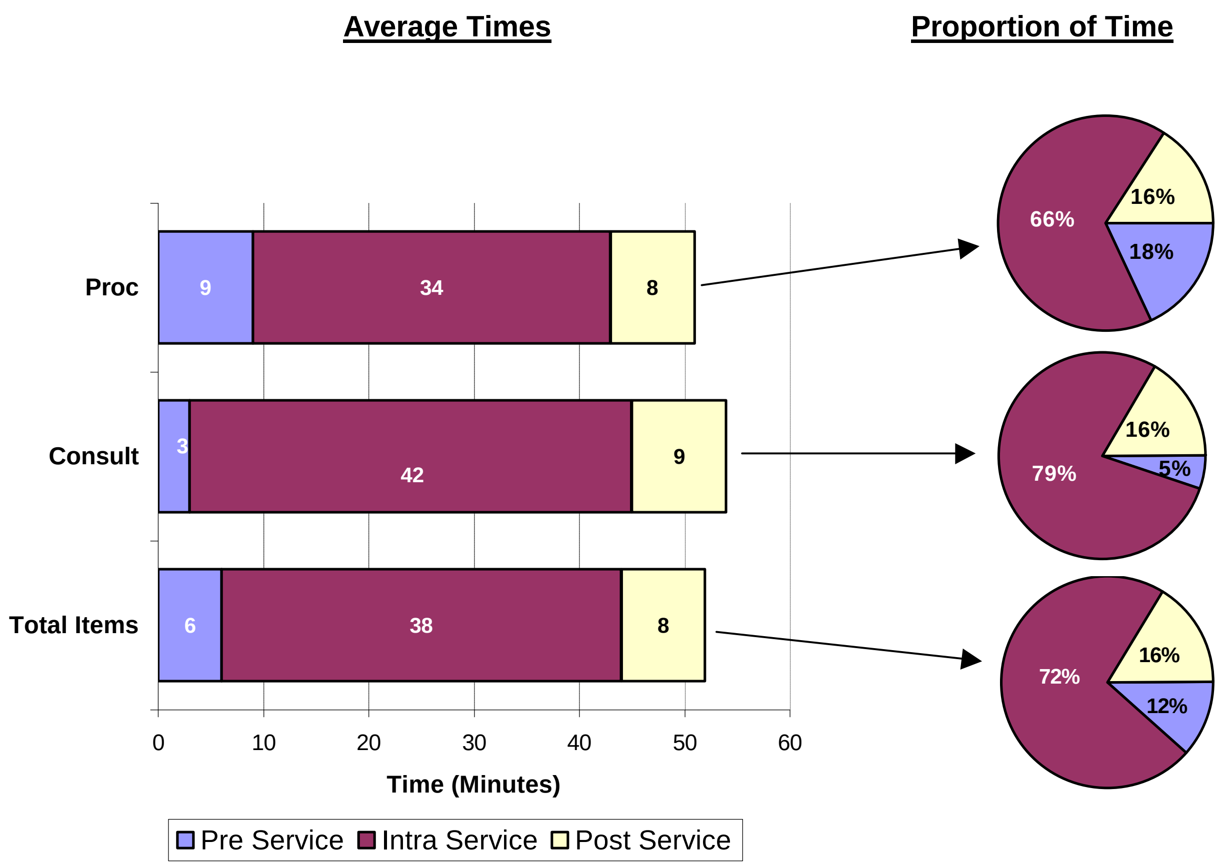
The mean intra service time was 38 minutes and the mean total time was 52 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	6	38	8	52
SD	7	36	5	44
Min	0	10	0	15
Max	30	180	30	230

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for procedure items, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Items	9.1	33.5	8.0	50.6
Consultation Items	2.9	42.3	8.9	54.1
Total Items	6.1	37.7	8.4	52.2

Clinical Haematology and Medical Oncology's intra time estimates were also compared against our data base of actual theatre times obtained from hospitals and other studies.

The median ratio of Clinical Haematology and Medical Oncology's intra time estimates to the observed procedure times was 85.7%. This implies a tendency by this Consensus Group to under estimate their intra times. A more detailed analysis is provided in Attachment 2.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Clinical Haematology and Medical Oncology are set out in Table 3.1 together with associated standard deviations and ranges.

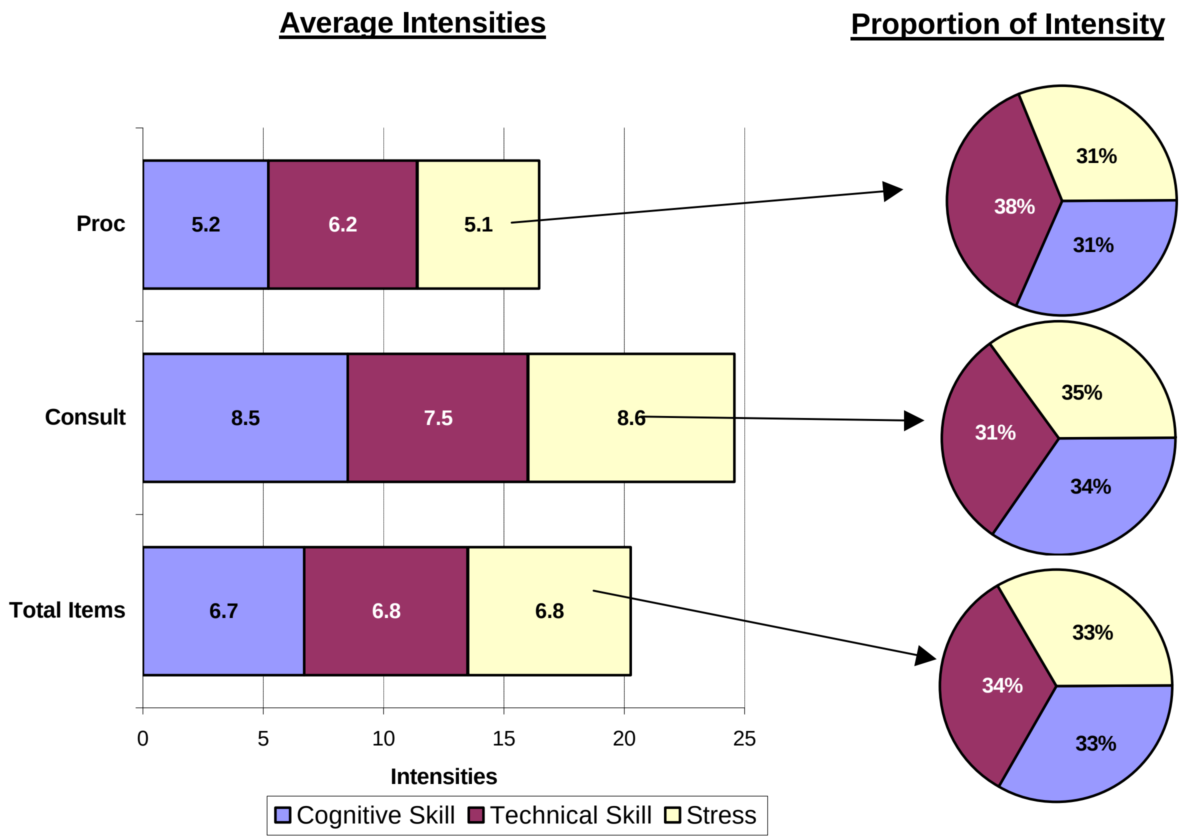
The mean ratings were 6.7 for cognitive skill, 6.8 for technical skill and 6.8 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 3.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	6.7	6.8	6.8	20.3
SD	2.1	1.5	2.3	5.5
Min	3.0	5.0	3.0	12.0
Max	10.0	10.0	10.0	28.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for procedure items, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Items	5.2	6.2	5.1	16.5
Consultation Items	8.5	7.5	8.6	24.6
Total Items	6.7	6.8	6.8	20.3

[2] Please note that intensity descriptions are abbreviations only.
a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (i.e. time and intensity). This ranking process is the most important determinant in the development of relative values.

A summary of the ranks given to procedure and consultation items is set out in Table 4.1. The procedure items were given significantly lower ranks than the consultation items (sum of ranks test, $p < 0.01$).

Table 4.1

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Procedure	24	1	46	28.6
Consultation	22	5	43	18.0
Total	46	1	46	23.5

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Clinical Haematology and Medical Oncology Consensus Group assessed 30 link items. These comprised all 22 of their consultation items and 8 of the 24 procedure items. More details of the Group's link items are provided in Attachment 4.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4.2. The ranks given to link items were not significantly different from those given to non-link items.

Table 4.2

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Consultation	22	5	43	18.0
Procedure-Link	8	27	44	35.7
Total Link	30	5	44	22.7
Non-Link (Procedure)	16	1	46	25.0
Total	46	1	46	23.5

Good maps of Clinical Haematology and Medical Oncology's items to CPT were available for 2 of their 46 items. A breakdown of the ranks given to these good map items and to the poor/non map items is set out in Table 4.3. The difference was not significant.

Table 4.3

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Good Map	2	2	25.5	13.8
Poor/Non Map	44	1	46	23.9
Total	46	1	46	23.5

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analyzed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Clinical Haematology and Medical Oncology is 1 to 31. This ratio is reduced to 17 when the highest IRV is removed.

By dividing imputed relative values by time we can impute <u>relative</u> rates of pay.
The group has not weighted the component times (pre: intra: post) differently so the range in relative rates of pay depends on intensity alone and is 1 to 2.4.

This range in relative rates of pay is lower than the median observed for specialties examined so far[3]. The lack of weighting of component times and the limited variation in intensity ratings means that there could be some difficulty in aligning Clinical Haematology and Medical Oncology's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

Comparisons between consultation and procedure items, between link items and non link items and between good map items and poor/no map items in terms of imputed relative value (IRV) are set out in Table 5.1.

The imputed relative values given to procedure items were only significantly lower than those given to consultation items when log transformed data were tested (t test, $p < 0.01$). There was no significant difference between the imputed relative values given to link items and those given to non-link items. There were only two good map items and there was no significant difference between the imputed relative values given to them and those given to poor/no map items.

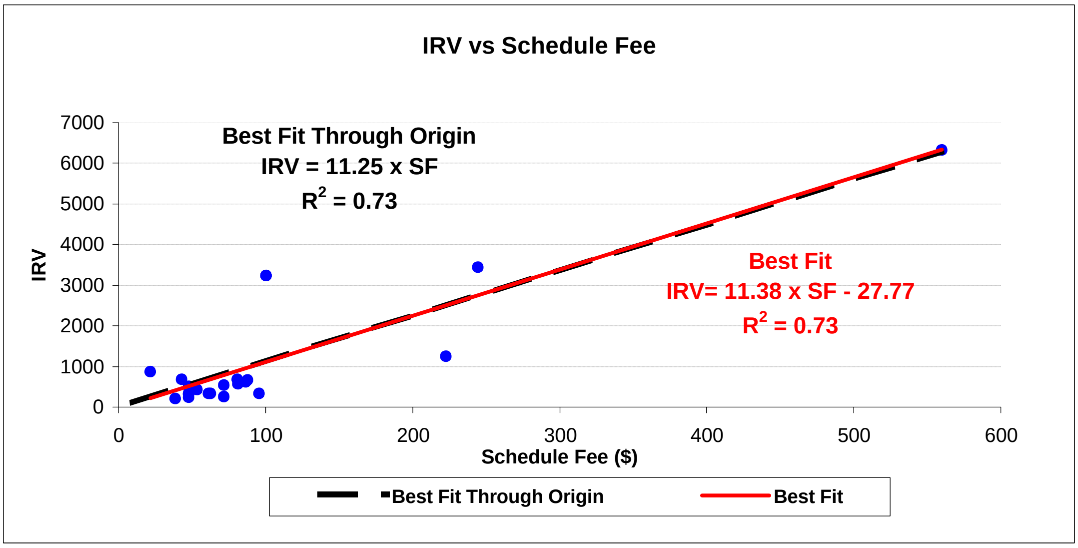
Table 5.1

Type of Item	Number Reviewed	IRVs				
		Mean	±	SD	Low	High
Consultation	22	1650	±	899	262.5	3135.0
Procedure	24	1088	±	1478	202.5	6325.0
Link	30	1322	±	946	247.5	3135.0
Non-link	16	1422	±	1728	202.5	6325.0
Good Map	2	2056	±	1943	682.5	3430.0
Poor/No Map	44	1325	±	1239	202.5	6325.0
Total	46	1357	±	1255	202.5	6325.0

A plot of Clinical Hematology and Medical Oncology's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). The fit is reasonable (R^2=0.73)[4] and is consistent with a straight line relationship through the origin. However the relationship is strongly influenced by MBS item 13760. There are also a number of outliers which should be investigated. These comprise MBS item numbers 12506,13750, and 13755.

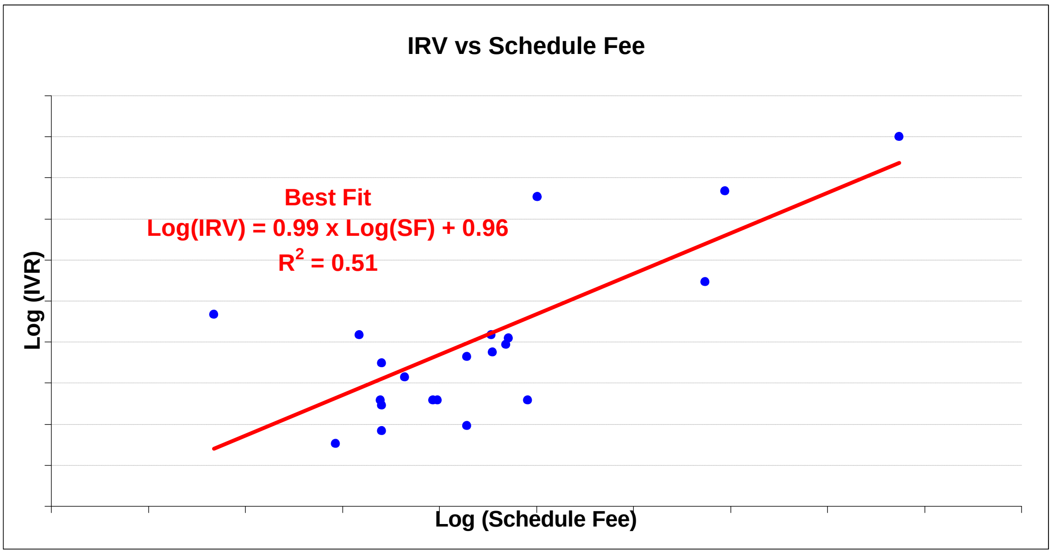
[4] An R^2 value of 0.73 means that the line explains 73% of the variation.

Figure 5.1



We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit explains 51% of the variation as against 73% previously. There are again a number of outliers which should be investigated. MBS item numbers 13933 and 13939, which are chemotherapy items, appear to incorporate other costs in their schedule fee. The other outliers are MBS item number 30087 in addition to 13750 and 13755 which were mentioned previously.

Figure 5.2



A plot of Clinical Haematology and Medical Oncology IRVs against CPT RV is not shown because it comprises only two items. However, the two points are very consistent with a straight line through the origin (adjusted R^2 = 0.97).

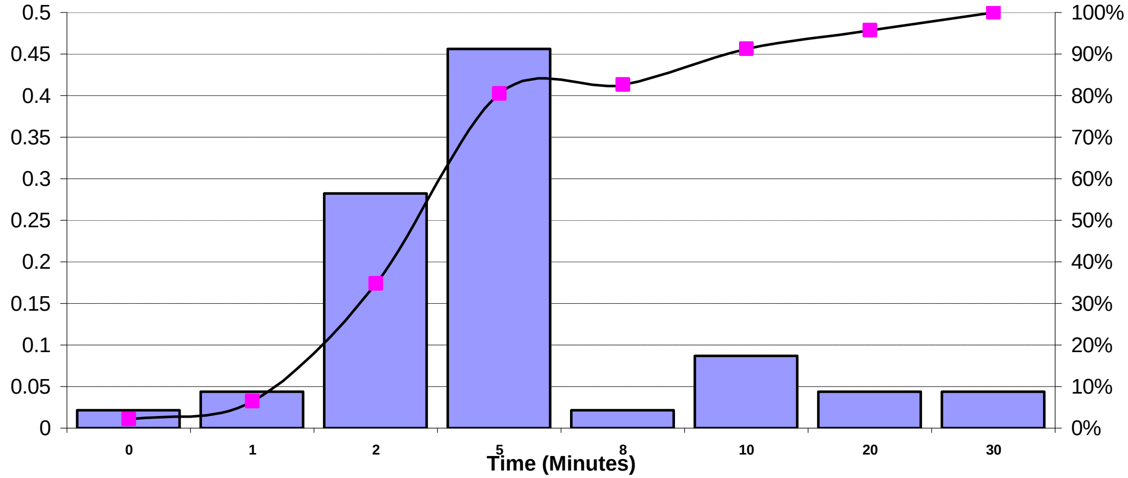
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	1	2.2%	2.2%
1	2	4.3%	6.5%
2	13	28.3%	34.8%
5	21	45.7%	80.4%
8	1	2.2%	82.6%
10	4	8.7%	91.3%
20	2	4.3%	95.7%
30	2	4.3%	100.0%
Total	46	100.0%	

Number of missing values = 0

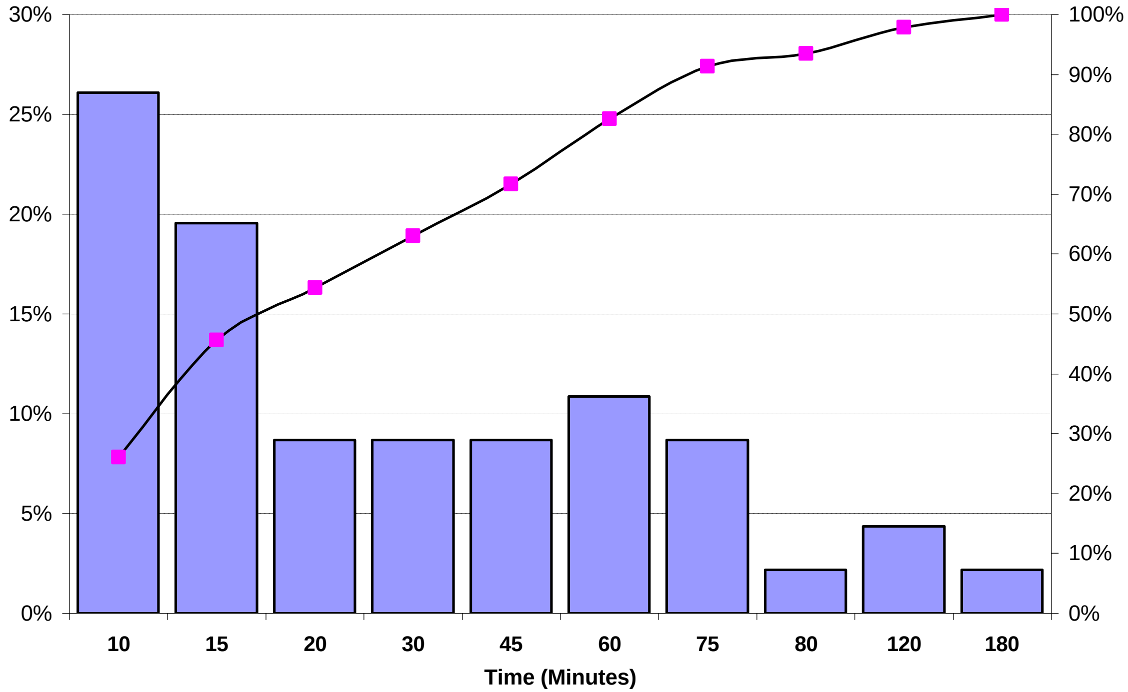


Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
10	12	26.1%	26.1%
15	9	19.6%	45.7%
20	4	8.7%	54.3%
30	4	8.7%	63.0%
45	4	8.7%	71.7%
60	5	10.9%	82.6%
75	4	8.7%	91.3%
80	1	2.2%	93.5%
120	2	4.3%	97.8%
180	1	2.2%	100.0%
Total	46	100.0%	

Number of missing values = 0

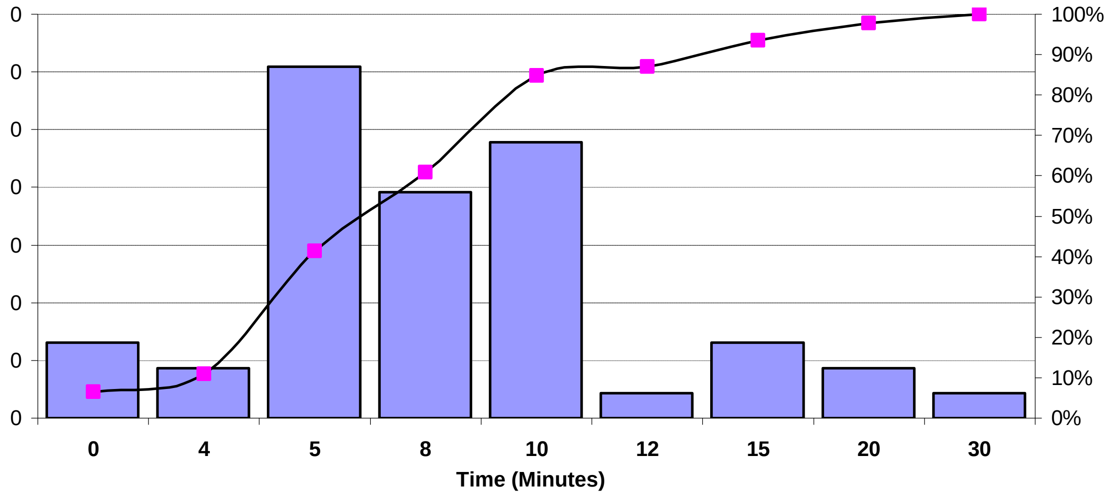


Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
0	3	6.5%	6.5%
4	2	4.3%	10.9%
5	14	30.4%	41.3%
8	9	19.6%	60.9%
10	11	23.9%	84.8%
12	1	2.2%	87.0%
15	3	6.5%	93.5%
20	2	4.3%	97.8%
30	1	2.2%	100.0%
Total	46	100.0%	

Number of missing values = 0



COMPARISON OF CLINICAL HAEMATOLOGY AND MEDICIAL ONCOLOGY (CHAMO) INTRA TIME ESTIMATES WITH OTHER ESTIMATES

Time	OTHER TIME ESTIMATE (OTE)			No. of items in common	Average Time in Minutes		Ratio 100 x CHAMO/OTE
	ID	Type	Definition of Time *		CHAMO	OTE	
OST	H4	Priv	Knife to Skin -to- Dressing Applied	0			
	H6	Priv	Knife to Skin -to- Drapes Removed	0			
	H11	Priv	Pt Prepped -to- Drapes Removed	0			
OPERATION TIME ** (OPT)	H1	Priv	Pt Positioned -to- Drapes Removed	1	20.0	23.3	85.7
	H8	Priv	Pt Positioned -to- Drapes Removed	2	12.5	27.0	46.3
	H10	Priv	Pt Positioned -to- Drapes Removed	0			
	H13	Priv	Pt Positioned -to- Drapes Removed	1	10.0	26.0	38.5
	H15	Priv	Pt Positioned -to- Drapes Removed	0			
	H16	Pub	Pt Positioned -to- Dressing Applied	4	31.3	30.5	102.5
	H17	Pub	Surgeon with Pt -to- Drapes Removed	1	80.0	49.2	162.8
	H18	Priv	Pt Positioned -to- Drapes Removed	2	10.0	18.1	55.3
	H19	Pub	Pt Positioned -to- Dressing Applied	0			
	H20	Pub	Pt Positioned -to- Dressing Applied	2	12.5	23.9	52.4
	APHA	Priv	Surgeon with Pt -to- Surgeon Leaves Pt	1	20.0	43.0	46.5
	CANS	Pub & Priv	Surgeon with Pt -to- Surgeon Leaves Pt	3	38.3	34.7	110.6
	Deloitte	Pub & Priv	Pt Positioned -to- Drapes Removed	0			
OPERATION TIME 2 (OPT 2)	H8	Priv	Pt Positioned -to- Trans. to Recovery Staff	2	12.5	31.0	40.3
	H9A	Priv	Pt Positioned -to- Trans. to Recovery Staff	1	20.0	12.5	160.0
	H9B	Priv/Day	Pt Positioned -to- Trans. to Recovery Staff	1	80.0	90.0	88.9
	H13	Priv	Pt Positioned -to- Trans. to Recovery Staff	1	10.0	31.0	32.3
	H15	Priv	Pt Positioned -to- Trans. to Recovery Staff	0			
	H16	Pub	Pt Positioned -to- Trans. to Recovery Staff	4	31.3	34.6	90.2
	H17	Pub	Surgeon with Pt -to- Trans. to Recovery Staff	1	80.0	55.9	143.2
	H18	Priv	Pt Positioned -to- Trans. to Recovery Staff	2	10.0	19.6	51.2
	H19	Pub	Pt Positioned -to- Trans. to Recovery Staff	2	17.5	8.0	218.8
	H20	Pub	Pt Positioned -to- Trans. to Recovery Staff	3	15.0	19.8	75.8
	CANS	Pub & Priv	Surgeon with Pt -to- Trans. to Recovery Staf	3	38.3	40.0	95.8
ANAESTHETIC TIME (OAT)	H1	Priv	Prep. Anaes. -to- Drapes Removed	1	20.0	34.3	58.3
	H4	Priv	Anaesthetist with Pt -to- Dressing Applied	0			
	H6	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H8	Priv	Prep. Anaes. -to- Drapes Removed	2	12.5	30.5	41.0
	H10	Priv	Prep. Anaes. -to- Drapes Removed	0			
	H13	Priv	Anaesthetist with Pt -to- Drapes Removed	1	10.0	30.0	33.3
	H15	Priv	Induction of Anaes -to- Drapes Removed	0			
	H16	Pub	Prep. Anaes. -to- Dressing Applied	4	31.3	45.4	68.9
	H17	Pub	Prep. Anaes. -to- Drapes Removed	1	80.0	79.3	101.0
	H18	Priv	Anaesthetist with Pt -to- Drapes Removed	2	10.0	20.0	49.9
	H19	Pub	Prep. Anaes. -to- Dressing Applied	1	20.0	12.5	160.0
	H20	Pub	Prep. Anaes. -to- Dressing Applied	4	13.8	105.1	13.1
	CANS	Pub & Priv	Prep. Anaes. -to- Surg.Leaves Pt	3	38.3	46.3	82.7
	Deloitte	Pub & Priv	Induction of Anaes. -to- Drapes Remove	0			
ANAESTHETIC TIME 2 (OAT 2)	MBS	Pub & Priv	Anaesthetic Time Units as per MBS Schedule	4	32.5	48.8	66.7
	H5	Priv	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H7	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H8	Priv	Prep. Anaes -to- Trans. to Recovery Staff	2	12.5	34.5	36.2
	H9A	Priv	Prep. Anaes. -to- Trans. to Recovery Staff	1	20.0	16.0	125.0
	H9B	Priv/Day	Prep. Anaes. -to- Trans. to Recovery Staff	1	80.0	120.0	66.7
	H11	Priv	Prep. Anaes -to- Trans. to Recovery Staff	0			
	H12	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	0			
	H14	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	5	26.0	45.4	57.3
	H15	Priv	Induction of Anaes. -to- Trans. to Recovery Staff	0			
	H16	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	4	31.3	49.6	63.1
	H17	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	1	80.0	86.0	93.0
	H19	Pub	Prep. Anaes -to- Trans. to Recovery Staff	2	17.5	21.8	80.5
	H20	Pub	Prep. Anaes. -to- Trans. to Recovery Staff	4	13.8	106.7	12.9
	CANS	Pub & Priv	Prep. Anaes. -to- Trans. to Recovery Staff	3	38.3	51.7	74.2
	WAGroup	Priv	Induction of Anaes. -to- Trans. to Recovery Sta	4	13.8	22.5	61.1
TIME IN THEATRE (THT)	H2	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	2	15.0	19.9	75.3
	H3	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H11	Priv	Anaesthetist with Pt -to- Trans. from Recovery	0			
	H13	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	1	10.0	35.0	28.6
	H15	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	0			
	H18	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	2	10.0	21.5	46.5
	H19	Pub	Pt. Arrives in Theatre -to- Trans.to Recovery Staff	1	15.0	22.5	66.7
	C'mix	Pub	Anaesthetist with Pt -to- Trans.to Recovery Staff	11	22.7	47.0	48.3
	C'mix	Priv	Anaesthetist with Pt -to- Trans.to Recovery Staff	9	21.7	24.8	87.4
	C'mix Other	Day & Other	Anaesthetist with Pt -to- Trans.to Recovery Staf	1	10.0	16.5	60.6

* Definition of Time
- see Attachment A

**** Median ratio of CHAMO intra time estimates to OPT**
Unweighted = 55.3 %
Weighted (for number of items in common) = 85.7 %

THEATRE TIMES DEFINITIONS - STANDARDISED FROM HOSPITALS AND OTHER SOURCES

PATHWAYS FOR SURGEON AND ANAESTHETIST			PT ENTERS OP SUITE	PT ENTERS ANAESTHETIC BAY OR OPERATING ROOM			START OP TIME									END OP TIME		XFER TO RECOV	XFER FROM RECOV
ID	TIME	TYPE		Anaesth. arrives to talk to Pt	Anaesth. prepares Pt for anaes- cannula/ lines insertion	Anaes. Commence admin/ induction of anaes	Surg. with Pt after anaes induction	Pt is positioned	Pt is draped	Pt is prep'ed	Knife to skin	Wound Closure	Dressing Applied	Drapes Removed		Surgical Team leave Pt	Reversal of anaes	Xfer of Pt to Recov. Staff	
Hosp4	H4OST	Priv																	
Hosp6	H6OST	Priv																	
Hosp11	H11OST	Priv																	
Hosp1	H1OPT	Priv																	
Hosp8	H8OPT	Priv																	
Hosp10	H10OPT	Priv																	
Hosp13	H13OPT	Priv																	
Hosp15	H15OPT	Priv																	
Hosp16	H16OPT	Pub																	
Hosp17	H17OPT	Pub																	
Hosp18	H18OPT	Priv																	
Hosp19	H19OPT	Pub																	
Hosp20	H20OPT	Pub																	
APHA	APHAOPT	Priv																	
CANS	CANSOPT	Pub & Priv																	
Deloitte	DTOPT	Pub & Priv																	
Hosp8	H8OPT2	Priv																	
Hosp9A	H9AOPT2	Priv																	
Hosp9B	H9BOPT2	Priv/Day																	
Hosp13	H13OPT2	Priv																	
Hosp15	H15OPT2	Priv																	
Hosp16	H16OPT2	Pub																	
Hosp17	H17OPT2	Pub																	
Hosp18	H18OPT2	Priv																	
Hosp19	H19OPT2	Pub																	
Hosp20	H20OPT2	Pub																	
CANS	CANSOPT2	Pub & Priv																	
Hosp1	H1OAT	Priv																	
Hosp4	H4OAT	Priv																	
Hosp6	H6OAT	Priv																	
Hosp8	H8OAT	Priv																	
Hosp10	H10OAT	Priv																	
Hosp13	H13OAT	Priv																	
Hosp15	H15OAT	Pub																	
Hosp16	H16OAT	Pub																	
Hosp17	H17OAT	Priv																	
Hosp18	H18OAT	Pub																	
Hosp19	H19OAT	Pub																	
Hosp20	H20OAT	Pub & Priv																	
CAnS	CANSOAT	Pub & Priv																	
Deloitte	DTOAT	Pub & Priv																	
MBS	MBSOAT2	Pub & Priv																	
Hosp5	H5OAT2	Priv																	
Hosp7	H7OAT2	Priv/Day																	
Hosp8	H8OAT2	Priv																	
Hosp9A	H9AOAT2	Priv																	
Hosp9B	H9BOAT2	Priv/Day																	
Hosp11	H11OAT2	Priv																	
Hosp12	H12OAT2	Pub																	
Hosp14	H14OAT2	Pub																	
Hosp15	H15OAT2	Priv																	
Hosp16	H16OAT2	Pub																	
Hosp17	H17OAT2	Pub																	
Hosp19	H19OAT2	Pub																	
Hosp20	H20OAT2	Pub																	
CANS	CANSOAT2	Pub & Priv																	
WAGroup	WAOAT2	Priv																	
Hosp2	H2THT	Priv																	
Hosp3	H3THT	Pub																	
Hosp11	H11THT	Pub																	
Hosp13	H13THT	Priv																	
Hosp15	H15THT	Priv																	
Hosp18	H18THT	Priv																	
Hosp19	H19THT	Day & Other																	
C'mix -Pub	CMXPUTHT	Priv																	
C'mix -Pte	CMXPVTHT	Priv																	
C'mix-oth	CMXOTTHT	Priv																	

KEY: | = Hospitals where start/end times are defined by > 1 pathway time option

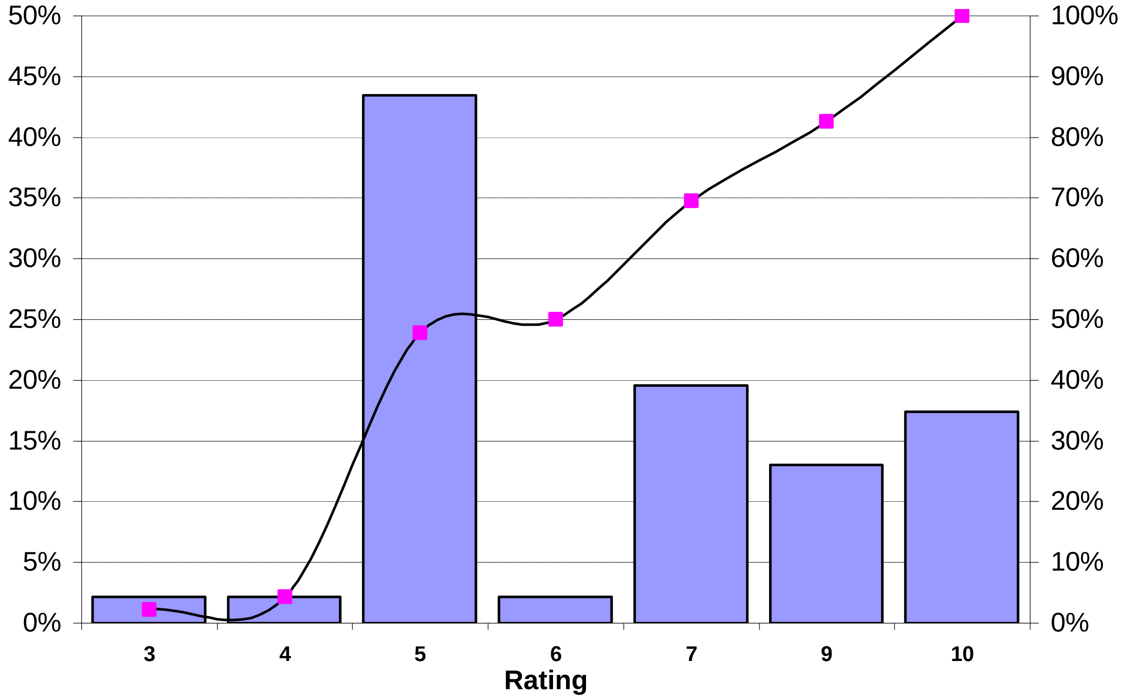
Attachment 3 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
3	1	2.2%	2.2%
4	1	2.2%	4.3%
5	20	43.5%	47.8%
6	1	2.2%	50.0%
7	9	19.6%	69.6%
9	6	13.0%	82.6%
10	8	17.4%	100.0%
Total	46	100.0%	

Number of missing values = 0

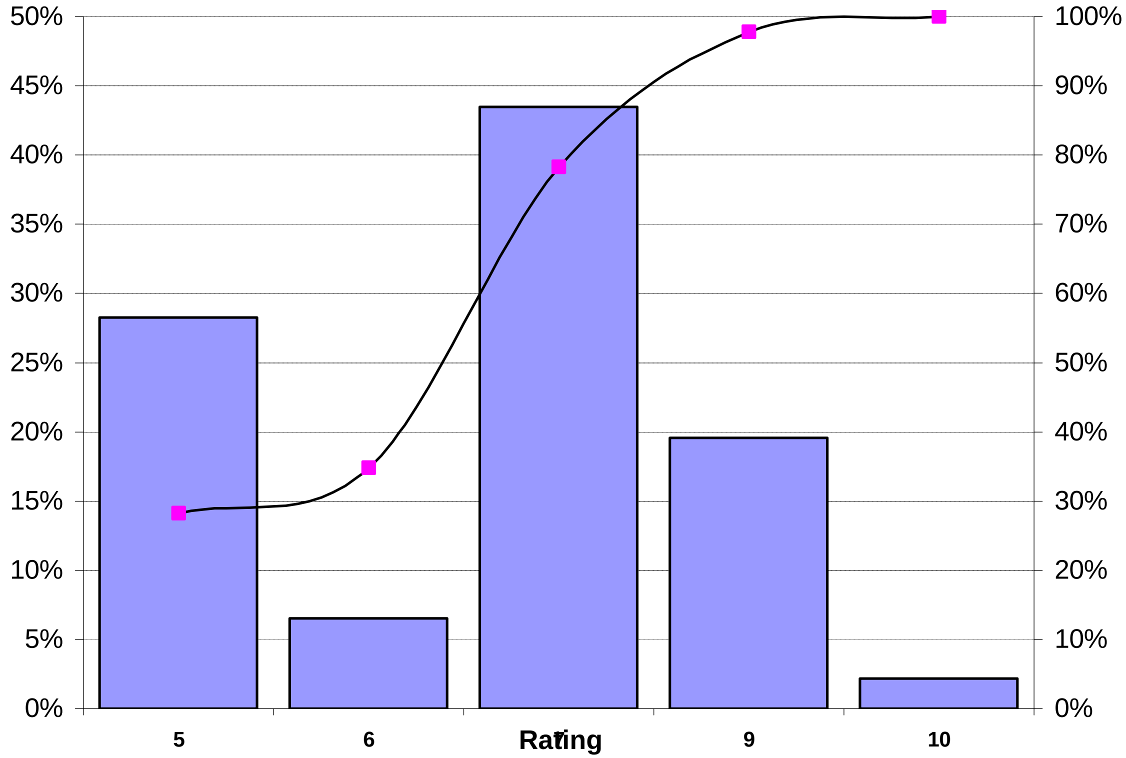


Attachment 3 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
5	13	28.3%	28.3%
6	3	6.5%	34.8%
7	20	43.5%	78.3%
9	9	19.6%	97.8%
10	1	2.2%	100.0%
Total	46	100.0%	

Number of missing values = 0

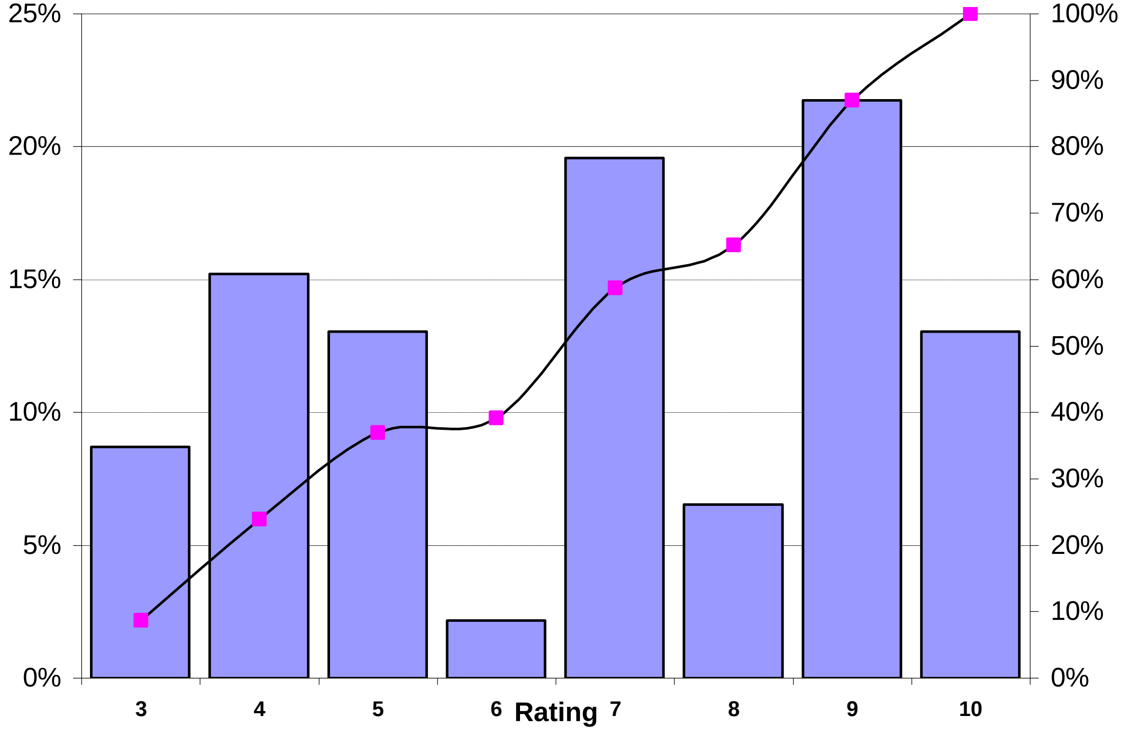


Attachment 3 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
3	4	8.7%	8.7%
4	7	15.2%	23.9%
5	6	13.0%	37.0%
6	1	2.2%	39.1%
7	9	19.6%	58.7%
8	3	6.5%	65.2%
9	10	21.7%	87.0%
10	6	13.0%	100.0%
Total	46	100.0%	

Number of missing values = 0



Attachment 4 - Links with Other Specialties

The number of link items between Clinical Haematology and Medical Oncology and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. & Emergency Med.	3	0	3
Facio-max Surgery	0	16	16
Obstetrics / Gynaecology	0	0	0
General Surgery	0	22	22
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	22	22
Orthopaedic surgery	0	22	22
Paediatric Surgery	0	13	13
Plastic Surgery	0	0	0
Urology	1	0	1
Vascular Surgery	0	0	0
Ophthalmology	0	0	0
ENT	0	3	3
Anaesthesia	4	22	26
Dermatology	0	7	7
Paediatric / Thoracic Medicine	2	22	24
General Medicine	2	18	20
Cardiology, Renal, ICU	1	0	1
Radiation, Oncology	0	22	22
Gastroenterology	0	22	22
Neurology	0	22	22
Psychiatry	0	22	22
Total	8	22	30

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.

CONFIDENTIAL DRAFT
FOR DISCUSSION ONLY

Psychiatry

Summary Status Report

September 24, 1999

Prepared For
Medicare Schedule Review Board (MSRB)

Prepared By
National Centre for Classification in Health (NCCH)

Table of Contents

Section 1   Overview

This document outlines the results of an examination of the information sent to the NCCH by the Psychiatry Consensus Group.

The Psychiatry Consensus Group provided time estimates, intensity ratings and internally consistent rankings for 61 items. These comprised 1 procedure item and 60 consultation items. There were 54 link items (all consultation); but there were no potential core (i.e. good map) items.

Analysis of the data showed:

- the intra time estimate on the one procedure item was much higher than NCCH's Theatre Times Database observed procedure times (25 minutes as against 9.4 minutes).

- there was no bias in the ranking of link items.

- The maximum range in relative rates of pay[1] implied by the Group's rankings was 1 to 7.8. This is considerably higher than the median observed for specialties so far examined. It may therefore be difficult to align Psychiatry's items with those of other groups.

- There was no significant difference in imputed relative values[1] between link items and non-link items.

- The correlation between the imputed relative values for Psychiatry and Medicare Benefits Schedule Fee was high (R^2 = 90%).

Readers are referred to the glossary at the back of this document for explanation of some of the terms used.

[1] The imputation of relative values and relative rates of pay and the reasons why they need to be considered are discussed in Section 5.

Section 2 Summary of Time Estimates

The mean pre service, intra service, post service and total times for Psychiatry are set out in Table 2.1 together with associated standard deviations and ranges.

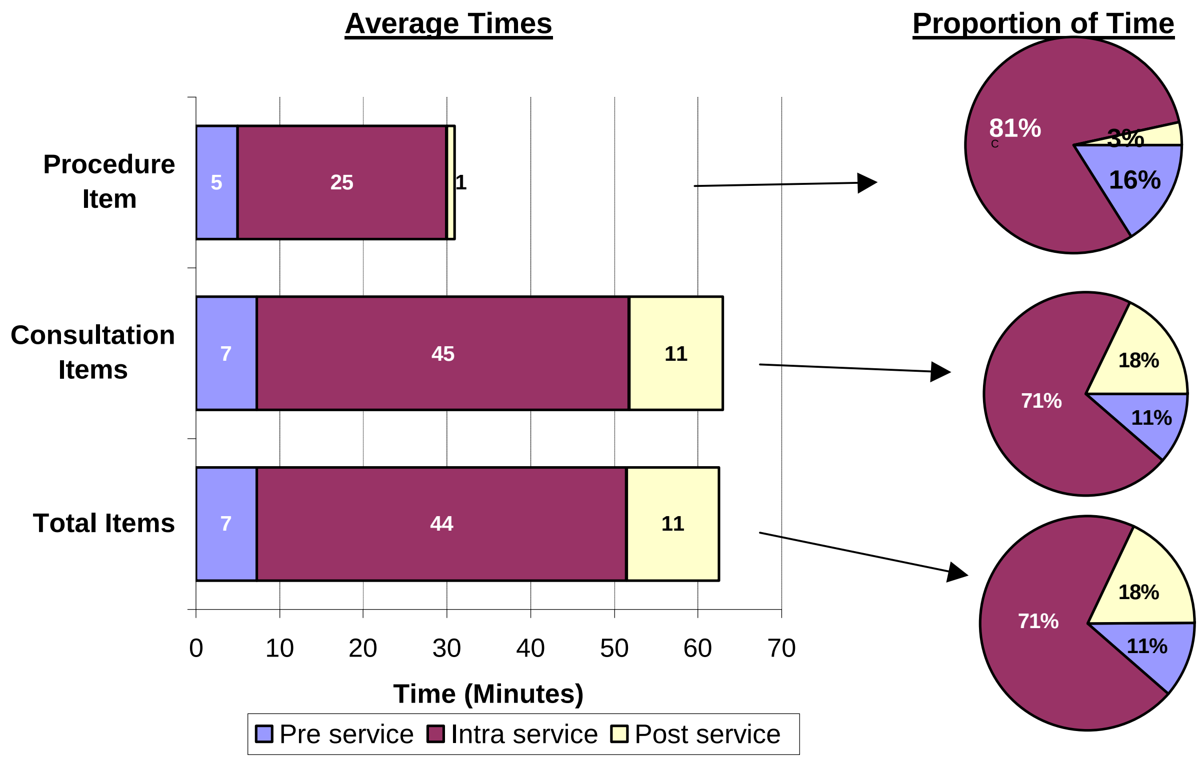
The mean intra service time was 44 minutes and the mean total time was 63 minutes. Full frequency distributions and histograms of these distributions are provided in Attachment 1.

Table 2.1

	Pre Service	Intra Service	Post Service	Total Time
Mean	7	44	11	63
SD	4	23	6	29
Min	1	5	1	8
Max	20	83	25	123

A graphical presentation of these mean times together with the percentage apportionments of total time are contained in Figure 2.1. These are provided for the procedure item, consultation items and all items.

Figure 2.1



A summary breakdown is also provided in Table 2.2.

Table 2.2

Average Times	Pre Service	Intra Service	Post Service	Total Time
Procedure Item	5.0	25.0	1.0	31.0
Consultation Items	7.3	44.5	11.3	63.1
Total Items	7.2	44.2	11.1	62.5

Psychiatry only has one procedure item. The intra time estimate for this was compared against our data base of actual theatre times obtained from hospitals and other studies.

Two hospitals had data on this procedure taken over 1029 and 8 observations. They both had very similar mean values (9.3 minutes and 9.4 minutes). These are considerably lower than Psychiatry's estimate of 25 minutes as is the MBS Anaesthetic time of 15 minutes.

Section 3 Summary of Intensity Ratings

The mean cognitive skill[2], technical skill[2], stress[2] and total intensity for Psychiatry are set out in Table 3.1 together with associated standard deviations and ranges.

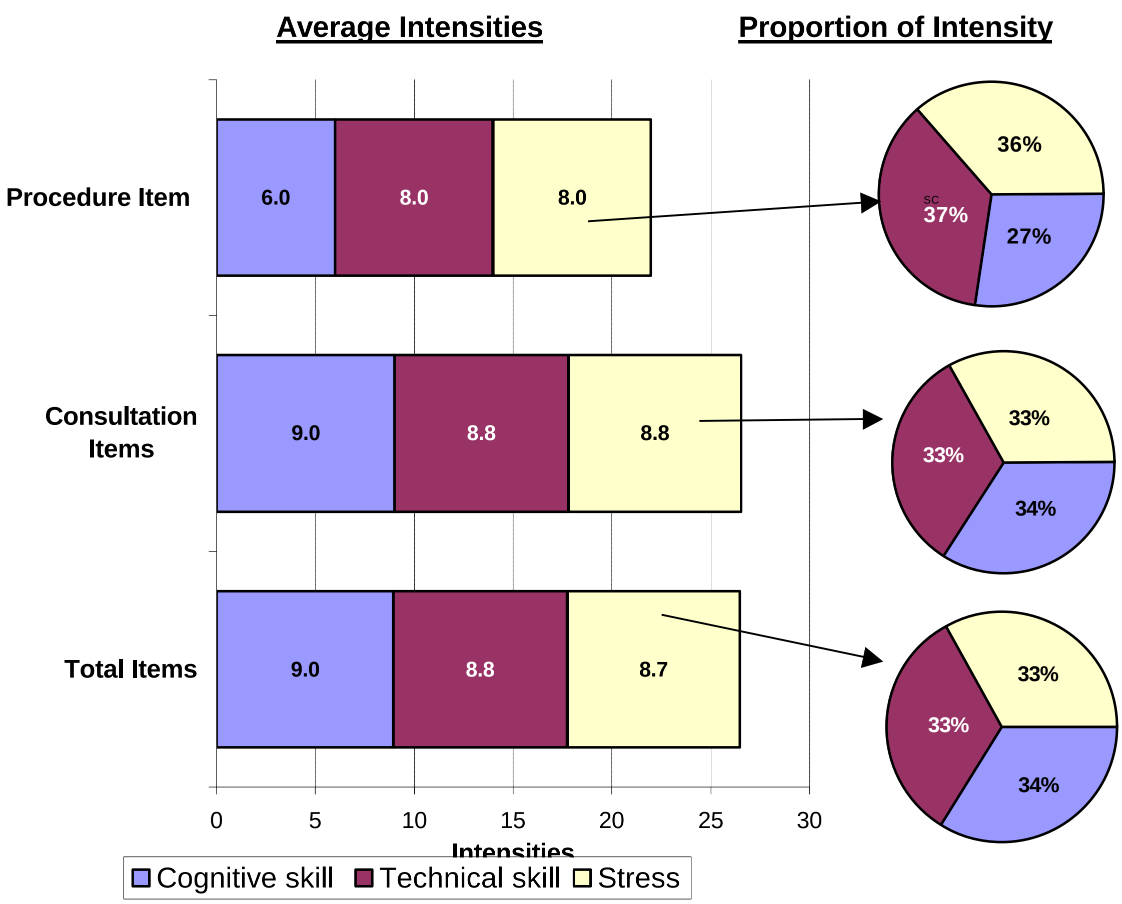
The mean ratings were 9.0 for cognitive skill, 8.8 for technical skill and 8.7 for stress. Full frequency distributions and histograms of these distributions are provided in Attachment 2.

Table 3.1

	Cognitive Skill	Technical Skill	Stress	Total Intensity
Mean	9.0	8.8	8.7	26.5
SD	1.4	1.4	1.5	4.1
Min	5.0	5.0	5.0	15.0
Max	10.0	10.0	10.0	30.0

A graphical presentation of these mean ratings together with the percentage apportionment of total intensity is contained in Figure 3.1. They are provided for the procedure item, consultation items and all items.

Figure 3.1



A summary breakdown is also provided in Table 3.2.

Table 3.2

Average Intensity Ratings	Cognitive Skill	Technical Skill	Stress	Total Intensity
Procedure Item	6.0	8.0	8.0	22.0
Consultation Items	9.0	8.8	8.8	26.6
Total Items	9.0	8.8	8.7	26.5

[2] Please note that intensity descriptions are abbreviations only.

a) Cognitive Skill = Cognitive Skill, Clinical Judgement and Communication Skills
b) Technical Skill = Technical Skill and Physical Effort
c) Stress = Stress Due to Risk

Section 4 Summary of Rankings

The PRS method requires medical clinicians to rank all MBS items relevant to each specialty (Consensus Group) in terms of their professional work content (that is time and intensity). This ranking process is the most important determinant in the development of relative values. All 61 Psychiatry items were ranked accordingly. The procedure item was ranked 50th.

MBS items ranked by more than one Consensus Group are used in the PRS method to align items across groups. These items are known as **link items**. The Psychiatry Consensus Group assessed 54 link items. These comprised 54 of their 60 consultation items and not the procedure item. More details of the Group's link items are provided in Attachment 3.

A breakdown of the ranks given to link items and to non-link items is set out in Table 4. The ranks given to link items were not significantly different from those given to non-link items.

Table 4

Type of Item	Number Reviewed	Ranking		
		Highest	Lowest	Average
Link	54	3	61	32.09
Non-link	7	1	50	22.57
Total	61	1	61	31.00

Good maps of Psychiatry's items to CPT were not available for any of their 61 items.

Section 5 Relative Value Implications

For most if not all of the CGs' ranked items, it is possible to impute relative values by examining the relationship between the rankings and the times and intensities.

Where CGs have used formulae to assist in determining their rankings (a majority of cases), these imputed relative values can often be derived directly from these formulae.

It is important that these imputed relative values are thoroughly analysed:

a) To ensure that they are fiscally viable (e.g. they result in acceptable ranges of rates of pay; they do not reward medical clinicians for negligible amounts of work nor do they result in little or no pay for many additional hours of work),

b) To check that they are acceptable in terms of their consistency with CPT and with the imputed relative values of other specialties. This is to forewarn us of likely problems in aligning the specialty's rankings and ratings with the rankings and ratings of other specialties, and

c) To guard against the possibility of "game playing".

The ratio of lowest to highest imputed relative value for Psychiatry is 1 to 99.31.

By dividing imputed relative values by time we can impute relative rates of pay. Depending on intensity alone (i.e. disregarding any deviation in the composition of times, pre: intra: post) the range in relative rates of pay is 1 to 6.17. Depending on both variations in intensity and on variations in the composition of times (pre: intra: post), the range in relative rates of pay is 1 to 7.80.

These ranges in relative rates of pay are considerably higher than the median observed for specialties examined so far[3]. In terms of deviations in rates of pay, there could therefore be some difficulty in aligning Psychiatry's rankings and ratings with those of the other groups.

[3] The median range in relative rates of pay depending on intensity alone is 1 to 3.0. The median range depending on both variations in intensity and variations in the composition of times is 1 to 4.5.

In this data set there is only one procedure item and there are no Good Map items so only the comparison between link items and non-link items in terms of imputed relative value (IRV) is set out in Table 5.

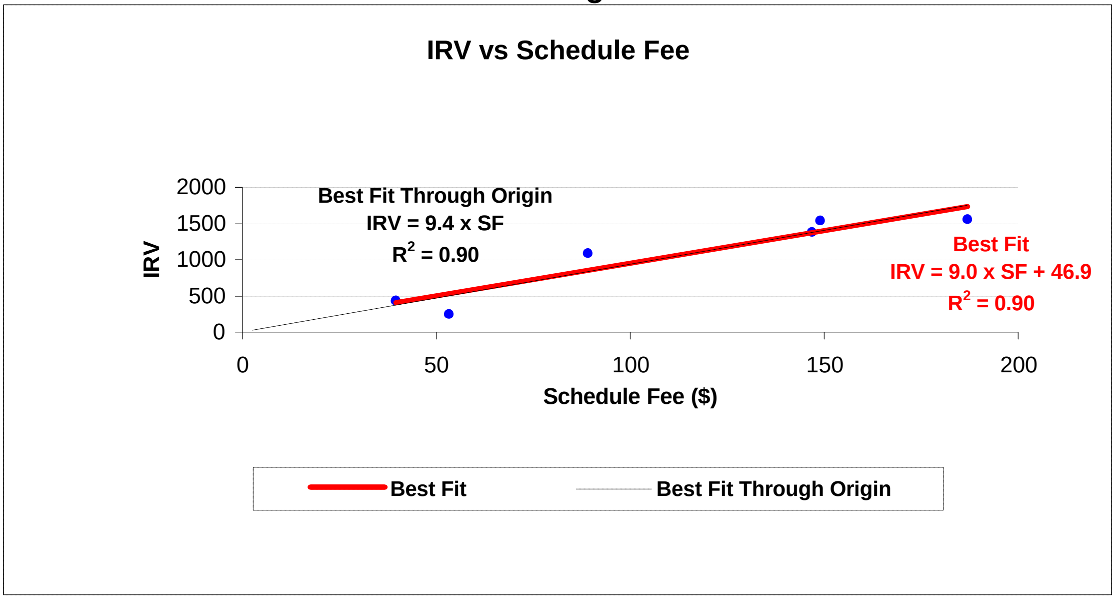
There was no significant difference between the imputed relative values given to link items and non-link items.

Table 5

	Number	IRVs			
Type of Item	**Reviewed**	**Mean**	**± SD**	**Low**	**High**
Link	54	729	± 472	16	1437
Non-link	7	955	± 572	250	1561
Total	61	755	± 484	16	1561

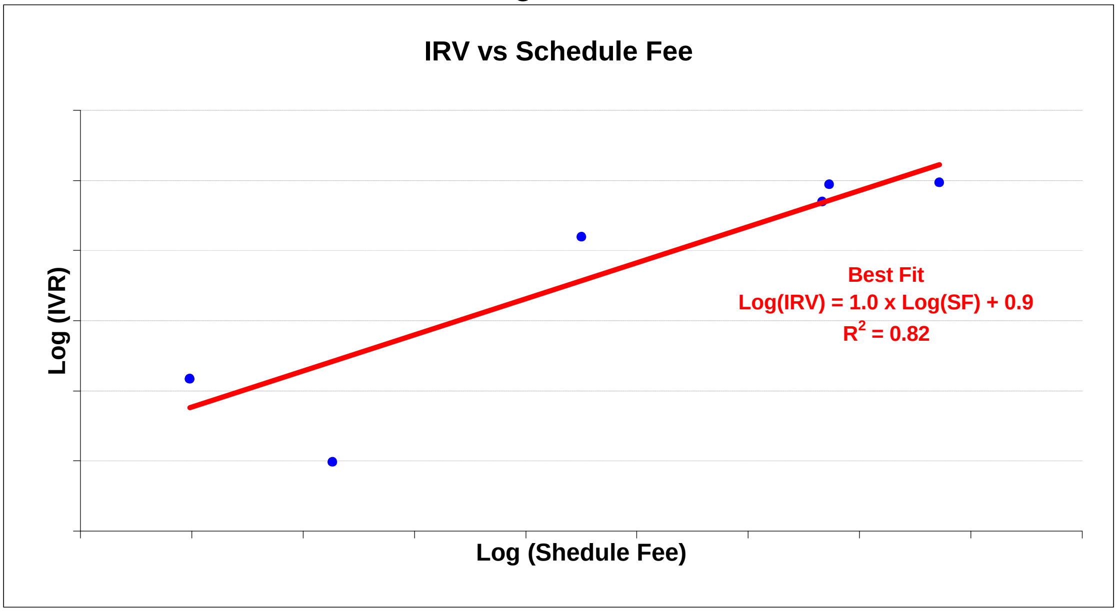
A plot of Psychiatry's imputed relative values against existing schedule fee is set out in Figure 5.1(overleaf). Items 342, 344, and 346 are group therapy items and the schedule fee is based on a fee per patient. In the plot, the schedule fees have been adjusted to reflect the number of patients involved; 5 for Item 342, 3 for Item 344 and 2 for Item 346. The fit was good.

Figure 5.1



We might expect the magnitude of error deviation to be small for low value items and large for high value items. For this reason, it is appropriate to also consider the plot of log (IRV) against log (Schedule Fee). This is done in Figure 5.2. The fit is not as good as that for IRV against Schedule Fee.

Figure 5.2



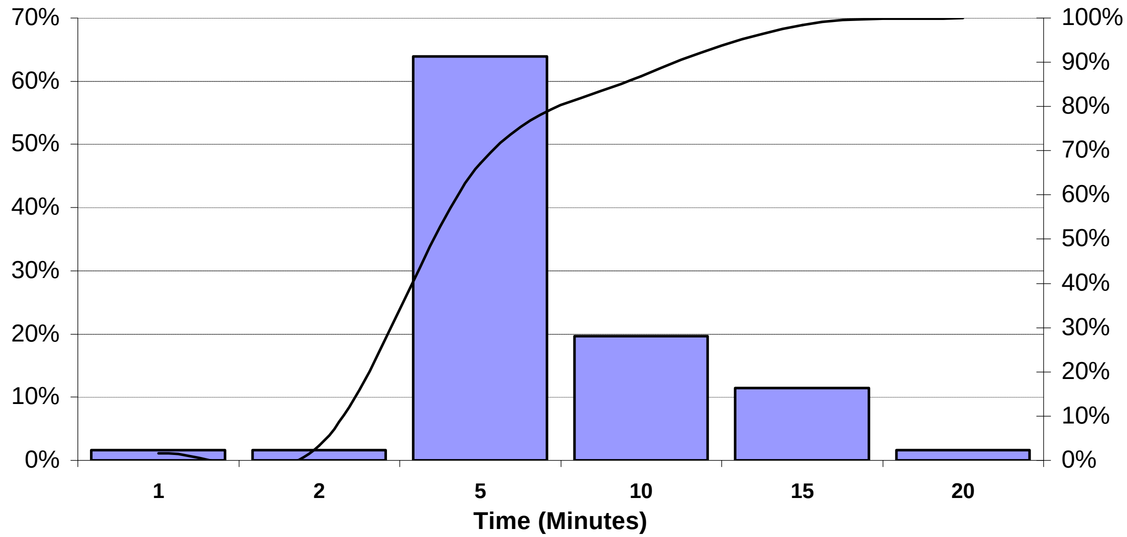
Attachment 1 - Frequency Distributions - Time Estimates

The following tables and figures illustrate the frequency and percentage of pre, intra, and post service times mentioned by this Consensus Group. The distribution of times is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Pre-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	1	1.6%	1.6%
2	1	1.6%	3.3%
5	39	63.9%	67.2%
10	12	19.7%	86.9%
15	7	11.5%	98.4%
20	1	1.6%	100.0%
Total	61	100.0%	

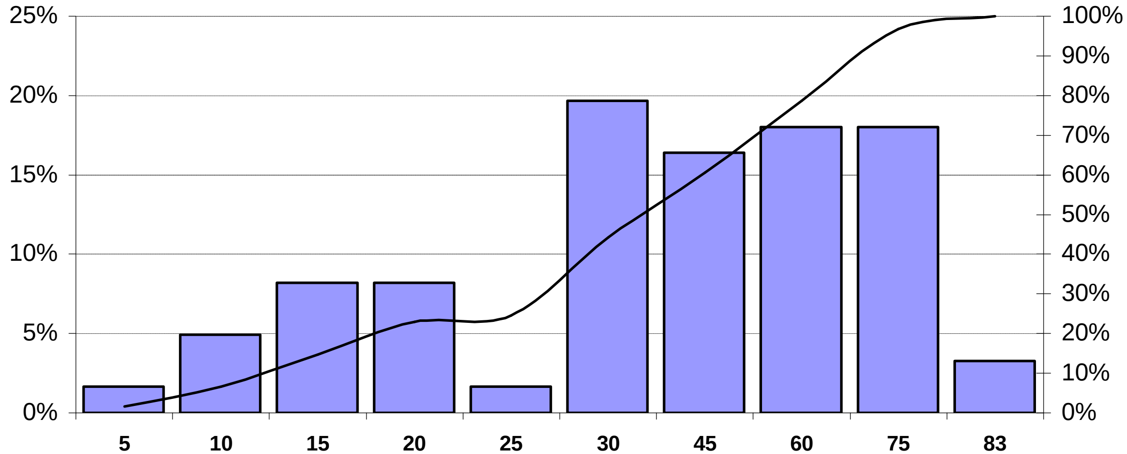
Number of missing values = 0



Attachment 1 - Continued

Summary Report for Intra-Service Time

Time	Freq.	Percentage	Cum. Percentage
5	1	1.6%	1.6%
10	3	4.9%	6.6%
15	5	8.2%	14.8%
20	5	8.2%	23.0%
25	1	1.6%	24.6%
30	12	19.7%	44.3%
45	10	16.4%	60.7%
60	11	18.0%	78.7%
75	11	18.0%	96.7%
83	2	3.3%	100.0%
Total	61	100.0%	



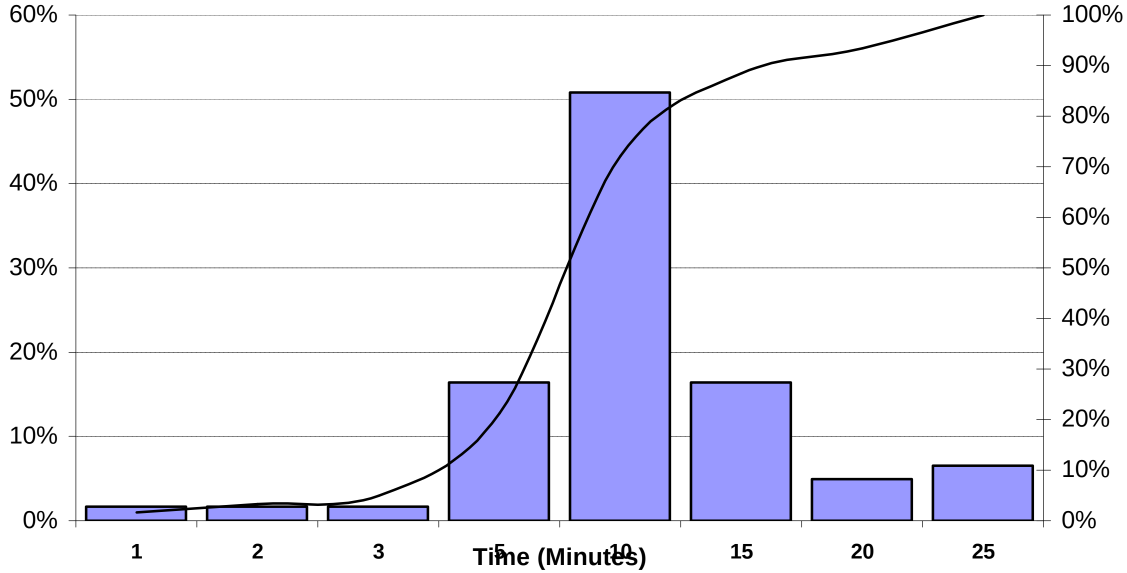
Number of missing values = 0

Attachment 1 - Continued

Summary Report for Post-Service Time

Time	Freq.	Percentage	Cum. Percentage
1	1	1.6%	1.6%
2	1	1.6%	3.3%
3	1	1.6%	4.9%
5	10	16.4%	21.3%
10	31	50.8%	72.1%
15	10	16.4%	88.5%
20	3	4.9%	93.4%
25	4	6.6%	100.0%
Total	61	100.0%	

Number of missing values = 0



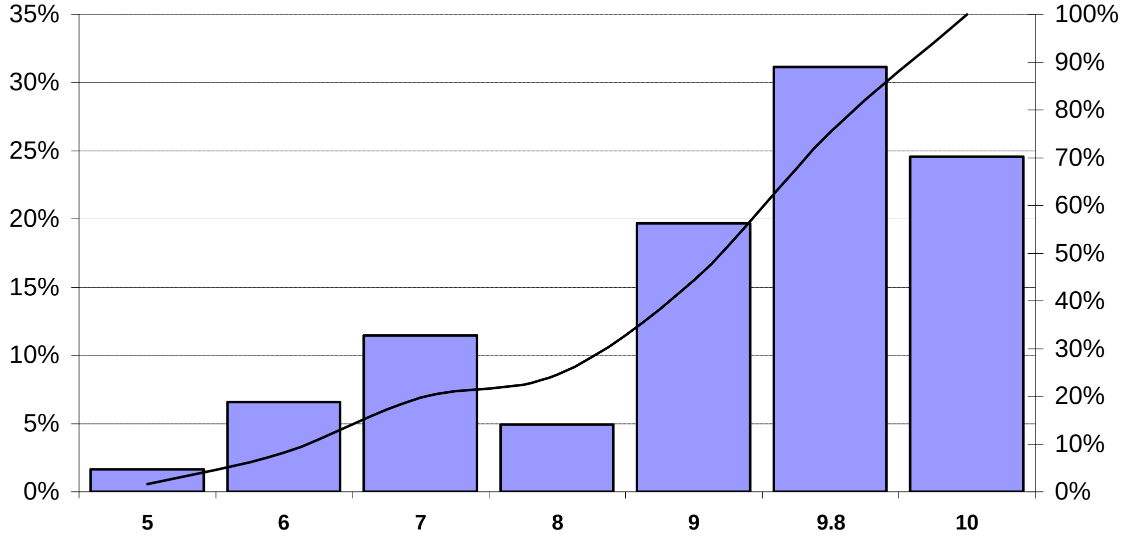
Attachment 2 - Frequency Distributions - Intensity Ratings

The following tables and figures illustrate the frequency and percentage of Intensity ratings mentioned by this Consensus Group. The distribution of ratings is shown by a series of bars while a continuous line represents the cumulative percentage.

Summary Report for Cognitive skill etc.

Rating	Freq.	Percentage	Cum. Percentage
5	1	1.6%	1.6%
6	4	6.6%	8.2%
7	7	11.5%	19.7%
8	3	4.9%	24.6%
9	12	19.7%	44.3%
9.8	19	31.1%	75.4%
10	15	24.6%	100.0%
Total	61	100.0%	

Number of missing values = 0

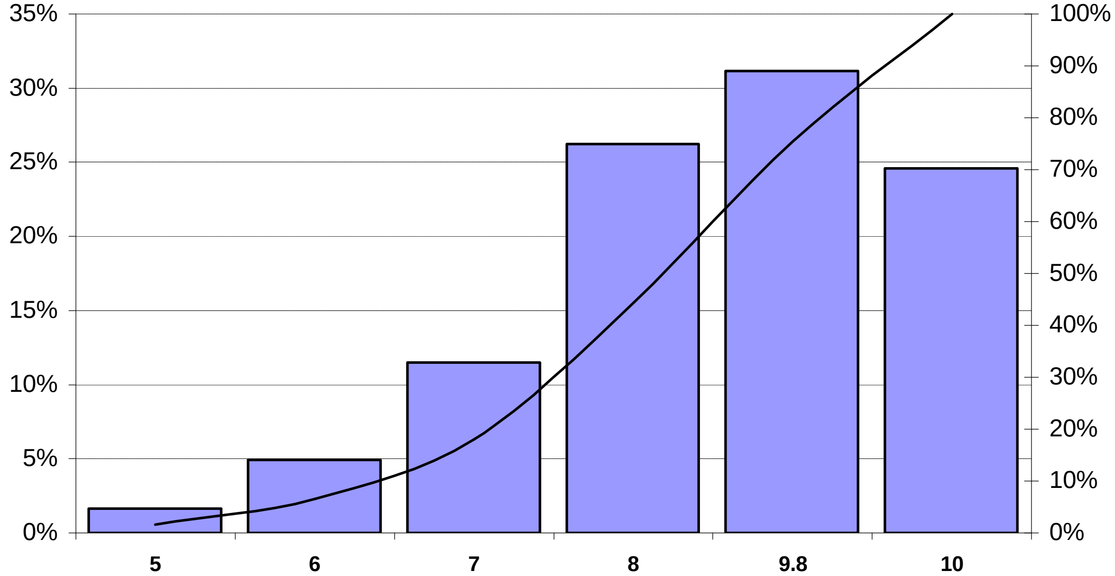


Attachment 2 - Continued

Summary Report for Technical skill etc.

Rating	Freq.	Percentage	Cum. Percentage
5	1	1.6%	1.6%
6	3	4.9%	6.6%
7	7	11.5%	18.0%
8	16	26.2%	44.3%
9.8	19	31.1%	75.4%
10	15	24.6%	100.0%
Total	61	100.0%	

Number of missing values = 0

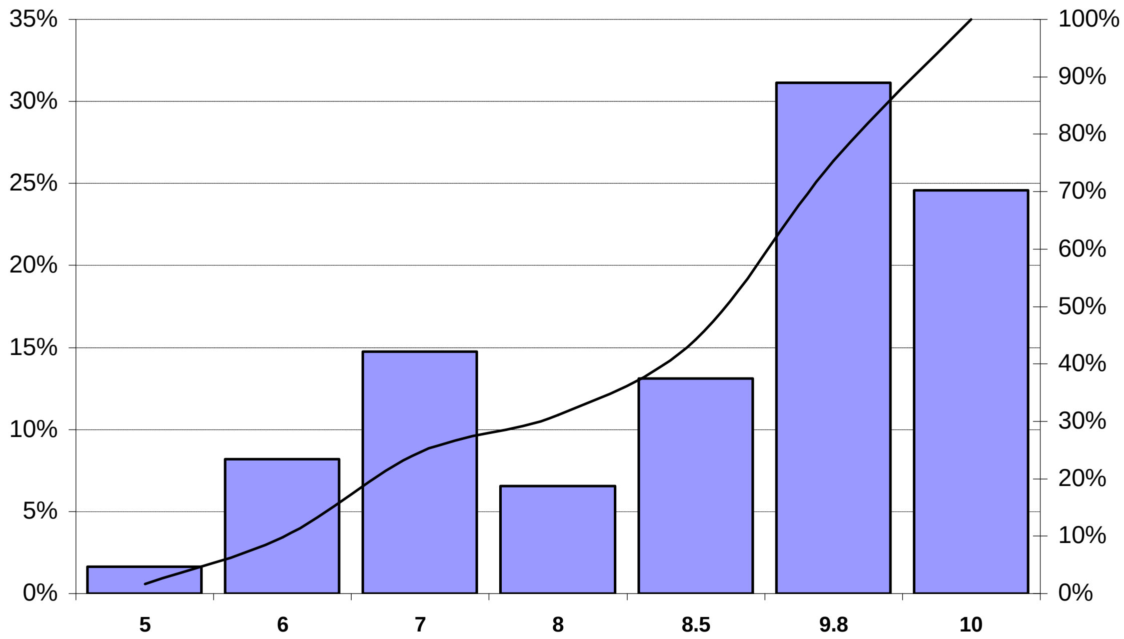


Attachment 2 - Continued

Summary Report for Stress

Rating	Freq.	Percentage	Cum. Percentage
5	1	1.6%	1.6%
6	5	8.2%	9.8%
7	9	14.8%	24.6%
8	4	6.6%	31.1%
8.5	8	13.1%	44.3%
9.8	19	31.1%	75.4%
10	15	24.6%	100.0%
Total	61	100.0%	

Number of missing values = 0



Attachment 3 - Links with Other Specialties

The number of link items between Psychiatry and the other Consensus Groups is set out below.

Number of Links with Other Specialties

Specialty	Procedure Items	Consultation Items	Total Items
Gen. Prac. &Emergency Med.	0	0	0
Oral and Maxillo-Facial Surgery	0	16	16
Obstetrics and Gynaecology	0	0	0
General Surgery	0	0	0
Cardio Thoracic Surgery	0	0	0
Neurosurgery	0	22	22
Orthopaedic Surgery	0	54	54
Paediatric Surgery	0	0	0
Plastic Surgery	0	10	10
Urology	0	0	0
Vascular Surgery	0	0	0
Opthalmology	0	0	0
ENT	0	0	0
Anaesthesia	0	54	54
Dermatology	0	0	0
Paediatric / Thoracic Medicine	0	53	53
General Medicine	0	46	46
Cardiology, Renal, ICU	0	0	0
Radiation Oncology	0	0	0
Gastroenterology	0	0	0
Neurology	0	54	54
Haematology, Medical Oncology	0	0	0
Total	0	54	54

Glossary

Consultation Item	Includes the new MBS consultation items developed under RVS Stage 1 and also current MBS consultation items (Category 1 in the MBS) not covered by the new structure.
Core Item	A Good Map Item with, preferably, a high frequency. Core Items will be chosen on the basis of: a) being a good map b) having as high a frequency as possible c) being well spread in terms of their rank.
CPT RV	The professional work component of a CPT Relative Value as defined by the American Medical Association in "Medicare RBRVS: The Physician's Guide".
Good Map	A MBS-CPT map assessed with a Terminology Rating of 3 and Code-to-Code Rating of 2 or 4 in the MBS-CPT mapping stage of the PRS. N.B. All good maps are potential Core Items.
IRV	Imputed Relative Value. Imputed from the relationship between the rankings and the times and intensities.
Link Item	An MBS Item which has been ranked and rated by two or more Consensus Groups.
Procedure Item	All MBS items that are not Consultation Items (in principle categories 2-4 in the MBS).
Rank	Consensus Groups rank MBS items from 1 to N (where N is the number of items to be assessed by that group) according to the amount of professional work required.
Schedule Fee	The Medicare Schedule Fee as defined in the MBS at 1 July, 1997.