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MEDICARE SCHEDULE REVIEW BOARD

Remuneration Rates Study

EXECUTIVE SUMMARY

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Glossary of Abbreviations and Terms

ABS	Australian Bureau of Statistics
ACEM	Australasian College of Emergency Medicine
AIHW	Australian Institute of Health and Welfare
ASCO	Australian Standard Classification of Occupations
AMA	Australian Medical Association
\$AUD	Australian Dollars
The Board	Commonwealth/Australian Medical Association Medicare Schedule Review Board
CE	Continuing Education
CME	Continuing Medical Education
The Department	The Commonwealth Department of Health and Aged Care
ED	Emergency Department
E_p	Remuneration reference rate expressed in dollars per hour
E_{gp}	Remuneration reference rate expressed in dollars per hour
EW_{gp}	Remuneration reference rate expressed in dollars per unit of work
FACEM	Fellow of the Australasian College of Emergency Medicine
FRACGP	Fellow of the Royal Australian College of General Practitioners
FRACS	Fellow of the Royal Australian College of Surgeons
FTE	Full time equivalent
GMST	General Medical Services Table
GPMRG	General Practice Monitoring and Reference Group
GPWVPS	General Practice Work Value Points Study
HECS	Higher Education Contribution Scheme
HIC	Health Insurance Commission
HMA	Healthcare Management Advisors

JES	Job Evaluation System
MBS	Medicare Benefits Schedule
MCED	Mercer Cullen Egan Dell
NPV	Net Present Value: The value obtained when a future stream of income is converted to the lump sum that could be invested now at a set rate (the discount rate) to return the future income stream
OECD	Organisation for Economic Cooperation & Development
PCS	Practice Costs Study
PPP	Purchasing Power Parity
PRS	Professional Relativities Study
RACGP	Royal Australian College of General Practitioners
RACP	Royal Australasian College of Physicians
RGRR	Reference Group on Remuneration Rates
RRMA	Rural, Remote and Metropolitan Areas
RRS	Remuneration Rates Study
RVS	Relative Value Study
The Taskforce	Commonwealth/Australian Medical Association Medicare Schedule Review Taskforce
TER	Tertiary Entrance Ranking
VMOs	Visiting Medical Officers
VR	Vocational Registration

Executive summary

The Remuneration Rates Study (RRS) is one of the three major studies that were undertaken as part of the Relative Value Study (RVS) overseen by the Medicare Schedule Review Board (the Board). The RRS consisted of three significant quantum of work. The first and smallest component of the work supported the selection of the reference category of doctors, for which the remuneration reference rate was to be developed. The second and largest component of the work supported the determination of the remuneration reference rate. The third component of the work derived index numbers that took account of human capital factor differences between doctors in the reference group and all other in-scope doctors, and would have allowed remuneration rates for the other categories of doctor to be calculated from the remuneration reference rate.

Consistent with Board's decision, this final study report prepared by Healthcare Management Advisors (HMA) does not recommend the fair and reasonable remuneration rates for doctors. The report completely sets out the methodology for determining the remuneration reference rate and the associated index numbers. It also presents worked examples of the method for illustrative purposes (all illustrative data are calculated as close as possible to December 1999). As with any modelling approach, there were areas where key assumptions needed to be made to parameterise the models. In some of these areas there was disagreement within the Board on how and/or whether particular factors should be included in the models. These areas are highlighted in this report as "disagreed matters" and, as per the Board's directive, HMA has not expressed any view on these matters.

SELECTING THE REFERENCE CATEGORY

The process of selecting the reference category of doctor for which the remuneration reference rate was to be calculated commenced by agreeing, through discussion with the Board, a short-list of four categories of doctor for detailed evaluation, as follows:

- general practitioners;
- consultant physicians;
- urban general practitioners; and
- urban general physicians.

Information on the four groups of doctors against each of the eleven evaluation criteria was collected, reviewed and evaluated. As a result of this process, the all GPs group was chosen as the reference category of doctor.

DETERMINING THE REMUNERATION REFERENCE RATE

The methodology for determining the remuneration reference rate was based around the development, in parallel, of comparative remuneration data in three major areas as follows.

- The development of standardised career models for whole of life earnings for selected (non-medical) professional groups. Building these models required a measure of the similarity of work between GPs and other professionals. The measure used, known as work value points, was provided by Mercer Cullen Egan Dell (MCED), the remuneration sub-consultants to the RRS. As no existing data on work value points for GPs were available, measuring the work value points for GPs became a major part of the RRS.
- The generation of reference data on the remuneration of doctors in the public sector.
- The generation of reference data on the remuneration of overseas doctors (GPs or their equivalents) by examining a range of published datasets, largely from OECD countries.

The process of moving from deriving the three datasets through to the determination of the remuneration reference rate for GPs was complex. Of necessity, the process mixed quantitative analysis with qualitative judgements to determine a fair and reasonable remuneration reference rate for GPs. The detailed career earnings models needed to be interpreted in conjunction with the higher level (broader) remuneration data for public sector and overseas doctors to produce the remuneration reference rate.

Choosing the other professional groups

The other (non-medical) professional groups were carefully chosen using clear criteria that searched for similarity between the intellectual capital factors of practitioners in those groups with intellectual capital factors for GPs, whilst having regard to practical factors such as the availability of remuneration data. Using a two-phase evaluation process the five other professional groups selected for the development of standardised career models were:

- Engineers;
- Lawyers;
- Accountants;
- Chemists; and
- Geologists.

Developing a standardised career model for GPs

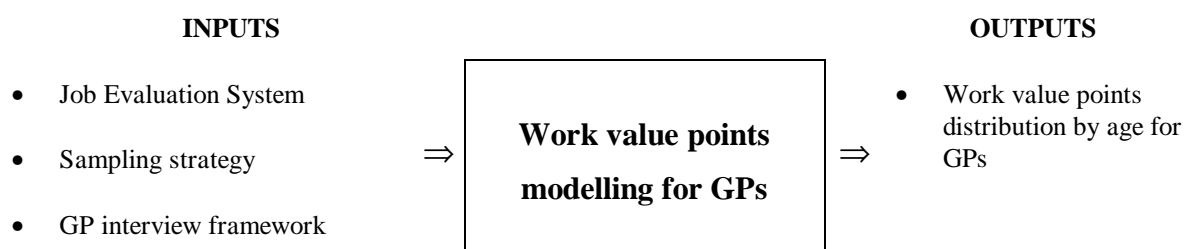
The career model for GPs provided the basis for calculating the whole of life earnings for GPs using market rates of pay for the other (non-medical) professional groups. The career model was designed to specifically take account of a range of intellectual capital factors including:

- the pre-fellowship, fellowship and post fellowship training periods;
- typical hours required for continuing medical education (CME);
- standardised practice hours (40 hours per week);
- standardised career entry and exit ages; and
- typical earnings through the training period.

Developing the work value points model for GPs

This part of the work became known as the General Practice Work Value Points Study (GPWVPS). In order to generate the data necessary to build the career models, the distribution of work value points by age for GP roles was required. Figure 1ES illustrates the key inputs to the process of finding the work value points distribution by age for GPs.

Figure 1ES: Finding the work value points distribution for GPs



The Job Evaluation System (JES) developed by MCED, and a number of similar systems in the remuneration consulting industry, assigns work value points based on an assessment of three primary factors relating to each job, not the job’s occupant. It is the work value of a job that is being evaluated, not the performance of the person doing the job. The work value points score assigned to each job reflects the “*value*” of the work being done. The process involves the preparation of a detailed job description for the position under evaluation. Work value points for the position are then determined by the assessment of the job description against three primary factors of “*expertise*”, “*judgement*” and “*accountability*”.

To give effect to the JES, a sample of GPs was selected for interview. The sampling strategy was determined, within a limitation of sixty sample points to balance age, location (state and rurality), and gender. The sampling process generated the data to allow a curve-fitting approach to be used to determine the distribution of work value points by age (thereby estimating the values for the age groups that could not be directly sampled). Table 1ES presents the mean, standard deviation and 95% confidence interval by age cohort derived from the quadratic curve fitted to the sixty sample data points.

Table 1ES: Population-weighted estimates of work value points for GPs by age cohort

Age cohort	Mean	95% confidence interval	
		Lower bound	Upper bound
25-29 years	540.2	498.2	582.3
30-34 years	578.8	554.3	603.4
35-39 years	608.8	585.2	632.4
40-44 years	630.2	602.5	658.0
45-49 years	643.0	614.6	671.4
50-54 years	647.2	621.7	672.7
55-59 years	642.8	616.3	669.3
60-64 years	629.8	587.6	672.1
Total	629.7	609.0	650.4

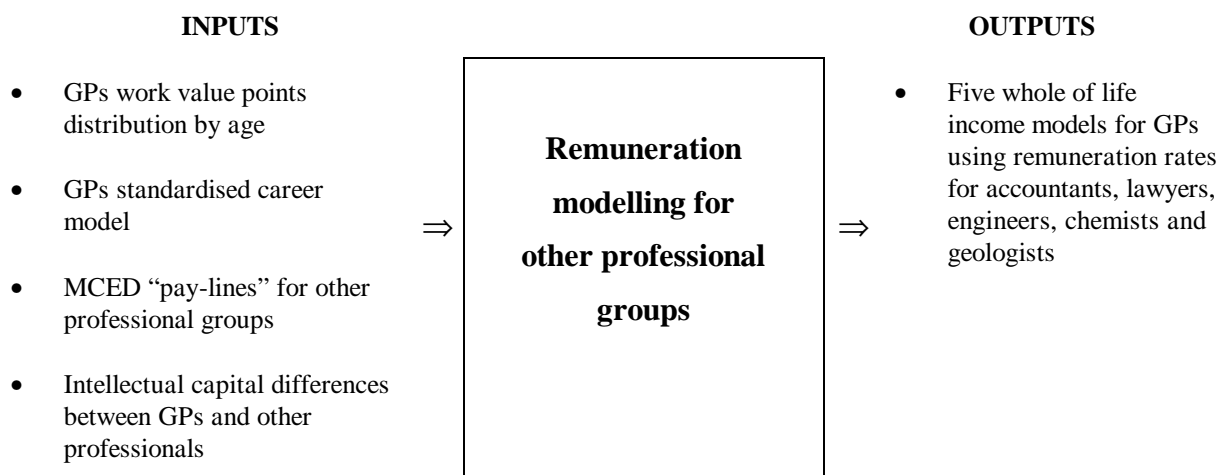
Review of the data showed that the GPWVPS demonstrated variability in the value of GP work as measured by the JES. This variability was in a narrower range than for other

professionals but it was still perhaps higher than anticipated. Nevertheless, the data provided reasonably reliable estimates of the mean work value points in each age cohort. By way of comparison, the JES typically produces work value scores for professional positions in the range from 250 to 1,000 points. The 250 point level reflects an entry level graduate position and 1,000 points applies to a professional position requiring an international “*guru*” in the professional discipline. Work value points scores for all but the top 1-2% of positions occupied by professionals range between 250 and 730 points.

Remuneration models for other professional groups

The career models were developed for each selected other professional group using the GP career path with the earnings levels applicable to practitioners in each group with doing work of similar value to GPs (as measured by work value points). Figure 2ES illustrates the key inputs to, and outputs from, the process of developing the standardised career models. Although the five other professional groups (accountants, lawyers, engineers, chemists and geologists) were selected on the basis of having comparable intellectual capital characteristics to doctors (and with regard to the availability of remuneration data), none of these groups is a perfect comparison group for GPs. In fact, the work on the RRS revealed that there were no perfect comparator groups.

Figure 2ES: Remuneration modelling for the other professional groups



As part of the remuneration modelling process a number of intellectual capital factors that were not directly (or adequately) taken into account by the JES were identified (JES was never designed to take account many of the identified factors). Nevertheless, the presence of these factors meant that the work value points attributed to a job could not alone determine the “right” remuneration for that job. For every work value points number for a given profession there were a range of remuneration levels in the market place. Given the work value points distribution for GPs it was still necessary to decide at which remuneration level to link a GP with the same work value points number as a practitioner in another professional group.

The MCED “*pay-lines*” modelled the relationship between work value points and remuneration for other professional groups. The lines were derived from market data obtained by MCED. For a given percentile (the 25th, 50th and 75th percentiles were used) the line represents the best fit (least squares regression) between the work value points and remuneration. In using the pay-lines, the data source from which they were derived needs to be carefully considered. MCED had the largest database on the remuneration of professionals

in Australia. Nevertheless, the database was drawn largely from MCED clients, which were not statistically representative of the total Australian labour market. Specifically, MCED advised that the pay-lines provided were likely to overestimate the true market medians for the professional groups that were under consideration.

Using the pay-lines, judgements could be made about the most appropriate level to choose when comparing GPs to each other professional group. It is likely that a different choice is appropriate for each professional group (e.g. the 50th percentile may be appropriate for lawyers but the 75th percentile may be appropriate for geologists). The key consideration in choosing the pay-lines is the impact of those compensable factors that were not adequately taken into account by the JES work value points (became known as the “*super-added*” factors).

By working with the General Practice Monitoring and Reference Group (specifically convened to oversee and advise on the GPWVPS) and conducting independent investigations, seven potentially compensable factors that may not have been adequately accounted for within the JES framework were identified. Following considerable work on each factor, the Board reached agreement on how three of the seven factors should be treated, but not the other four. Table 2ES summarised the status of each factor at the conclusion of the RRS.

Table 2ES: Status of super-added factors influencing the choice of pay-lines

Factor	Position
1 Length of training	Included in career models, agreed by Board
2 Cost of training	Included in career models, agreed by Board
3 Continuing education	Compensable, accounting method disagreed
4 Human management risk	Compensable, accounting method disagreed
5 Nature of GP work	Compensable, accounting method disagreed
6 Return on investment in intellectual capital	Compensable, accounting method disagreed
7 Intellectual capital on entry to undergraduate education	Not compensable, agreed by Board

As the Board could not agree on methods for dealing with the super-added factors, it was not possible to complete the development of the standardised career models. **For the purposes of illustrating the methodology the median pay-line for each comparator profession has been used.** By making this choice, a value for the remuneration reference rate that produces the same whole of life income for GPs as the standardised career model for each other profession can be found. Table 3ES presents these results for each comparator group.

Table 3ES: Remuneration reference rate generated by the comparator professions⁽¹⁾

Comparator Profession	Career NPV	GP hourly equivalent ⁽²⁾	GP annual equivalent ⁽²⁾
Accountants	\$1,355,437	\$67.30	\$123,826
Lawyers	\$1,441,930	\$72.42	\$133,262
Engineers	\$1,364,197	\$67.82	\$124,782
Chemists	\$1,217,915	\$59.15	\$108,828
Geologists	\$1,157,354	\$55.55	\$102,217
Chemists/Geologists	\$1,169,806	\$56.29	\$103,576

(1) For illustrative purposes, the comparative data are based on the use of median pay-lines

(2) GP equivalent remuneration is based on Medicare income earned from personal exertion by working the standardised 1840 hour year, excluding profits or losses from other activities (e.g. engaging locums)

Table 3ES shows that the career models produced data in a fairly wide range, moving from an annual rate of \$102,217 (geologists) to \$133,262 (lawyers). The differences in remuneration for positions with similar work value points effectively estimated the differences in the labour markets for the other professions. In hourly rate terms, this range represents \$55.55 using the geologists' model through to \$72.42 per hour using the lawyers' model. **These figures are illustrative and do not include any adjustment for the super-added factors or data bias.**

Public sector doctors remuneration data

Doctors working in public hospital Emergency Departments providing care to undifferentiated patients without direct supervision were chosen as the best comparison group of public sector doctors. A survey of this group of doctors was designed and distributed with the cooperation and support of the Australasian College of Emergency Medicine (ACEM). The overall results of the survey showed that the income for the target group of public sector doctors was in a fairly narrow range. The representative income figure (mean or median) for doctors working fulltime in public hospital Emergency Departments was \$149,000 per annum.

To allow more meaningful comparisons of the emergency physicians' data with remuneration levels for GPs, two subsets of the survey population were created. The first (subgroup one) focused on capturing full-time doctors who spent at least 50% of their time on patient care. The nature of Emergency Department work is that many doctors in the target group also spent significant amounts of their time supervising the work of interns, residents and registrars. For this reason, subgroup two was formed by taking all those doctors in subgroup one and further removing doctors with a high proportion of administrative work by excluding Departmental Directors and Deputy Directors from the analysis (subgroup two). Table 4ES presents the results for each survey group.

Table 4ES: Average and percentile annual incomes for public sector doctors⁽¹⁾

Income measure	All Respondents	Subgroup 1	Subgroup 2
Average income	\$148,578	\$149,786	\$142,578
25 th percentile	\$131,289	\$140,072	\$135,246
50 th percentile	\$149,117	\$152,053	\$149,397
75 th percentile	\$170,341	\$167,022	\$159,940

(1) Mainly Emergency Physicians holding FACEM qualifications working in public hospital EDs

Review of Table 4ES shows that an income range of \$135,000 to \$160,000 (25th to 75th percentile) represents a reliable estimate of the remuneration applicable to public sector doctors working in hospital Emergency Departments who had attained fellowship qualifications (that are most comparable to GPs). A range of factors, for which the impact could not be reliably quantified within the scope of the survey, need to be taken into account when using these figures as reference points as part of the process of setting the fair and reasonable remuneration reference rate for GPs.

Overseas doctors remuneration data

The focus of the international remuneration comparisons was on overseas doctors carrying out a similar role to that carried out by GPs in Australia. Large volumes of data were considered but there were very serious limitations on the use and presentation of the data because the associated definitions and timeframes are not consistent and comparable across countries. Using the available data some useful comparisons between Australia and other countries and other countries were produced, as presented in Table 5ES.

Table 5ES: GP remuneration comparisons, various countries

Overseas Doctors	Annual earnings (\$AUD)	Relative Index Value	Annual earnings (PPP)	Gatekeeper Role?
Australia ^(1,2,3)	\$88,877	2.79	68,367	Yes
Finland ⁽¹⁾	\$76,691	1.78	47,078	Yes
France ⁽¹⁾	\$83,304	1.57	50,677	No
New Zealand ^(1,4)	\$57,156	2.39	47,316	Yes
Norway ⁽¹⁾	\$68,531	1.42	37,835	No
United Kingdom ^(1,5)	\$110,737	2.59	69,505	Yes
United States ⁽¹⁾	\$215,538	3.28	139,000	No

(1) OECD Health Data 99, OECD, Paris, 1999

(2) Australian Health Insurance Commission 1998/99

(3) Australian Bureau of Statistics, Employee Earnings and Hours 1998

(4) New Zealand 1996 Census Data

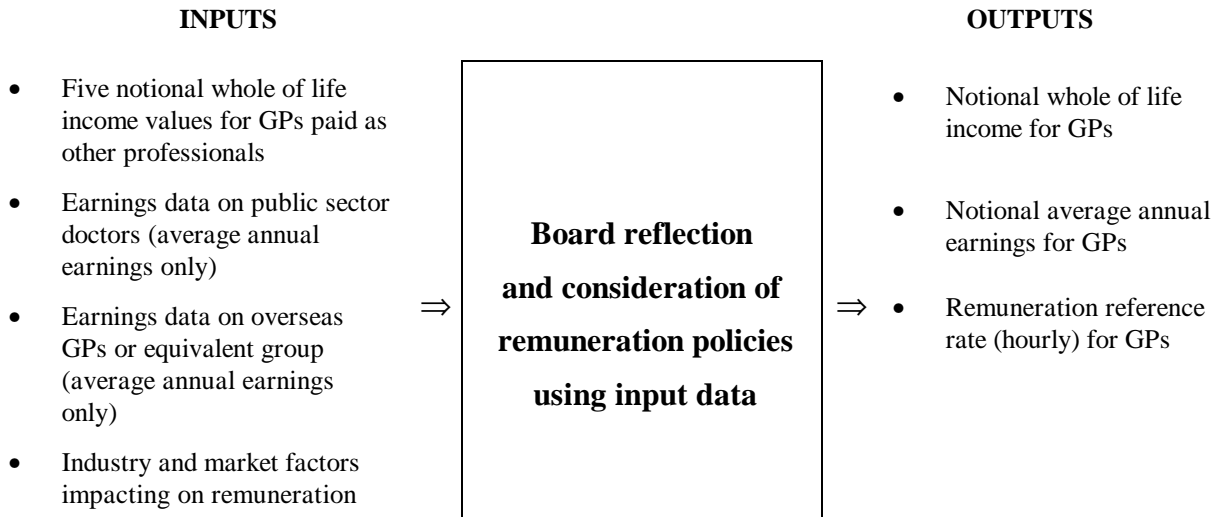
(5) RCGP Information Sheet No 5 April 1999 – Health Service Expenditure

Table 5ES shows that the results produced are largely as expected (the US being significantly different to other countries). The relative index value is the multiple of average weekly earnings earned by GPs, the PPP is a measure of the purchasing power of each country. The nature of the findings is such that they could not be expected to have any significant impact on setting the remuneration reference rate for GPs in Australia in the context of the RRS.

Calculating the remuneration reference rate

The key inputs into the process of calculating the remuneration reference rate were the career earnings models, the public sector doctors, and overseas doctors' remuneration data as illustrated in Figure 3ES.

Figure 3ES: Determining the remuneration reference rate



The decision on the notional whole of life income for GPs needed to be made from the five values obtained for whole of career earnings by using the market rates for the other professional groups. In taking this decision, the remuneration levels for GPs overseas and for the relevant subset of public sector doctors working in Australia needed to be considered. The decisions made in this step reflect the Board's consideration of, and reflection on, a range of industry and market related factors that influence remuneration.

The standardised career models produced values for whole of life incomes for the comparator professions (standardised for GP work) based on market rates of pay prevailing around December 1999 (the Board's reference date). The purpose of considering industry and market factors impacting on remuneration was to attempt to measure the degree to which the observed remuneration rates (December 1999) may vary from the long-term market average. The JES process did not reflect the impact of industry and market factors (JES only measures work value). It was considered that putting the standardised career model results into the context of the prevailing market conditions at the time the data were extracted (December 1999) would assist in determining how the results of the standardised career models should be used to set the remuneration reference rate.

Accordingly, an analysis of industry and market factors was carried out specific to the comparator professions. The industry and market factors considered were:

- Industry capacity to pay;
- Demand for labour;
- Supply of labour;
- Competition for employment;
- Industry stability;
- Turnover of labour;
- Job security; and
- Availability of a career path.

In many areas the analysis was by necessity subjective and relied on a compilation of expert opinion rather than detailed empirical studies. Reliance on opinion was necessary as the type of analysis that was being carried out for the purposes of the RRS had no precedent that could be drawn upon. Overall, it was found that, in the context of the RRS, some of the industry and market factors were more relevant to setting the remuneration reference rate than others. All the factors considered are typically used (in addition to work value points) by organisations considering where to pitch their remuneration levels for particular jobs, relative to the market. By their nature the industry and market factors are related and therefore not mutually exclusive.

The analysis focused on considering the relationship between the market norm and the NPV of the standardised career model for each comparator group. The nature of the industry and market factors is that some of them suggest that the market norm remuneration would be above the outcome of the standardised career model for a given professional group, some indicate an outcome about equivalent, while others suggest a choice below. The Board was not able to reach agreement on the value of the analysis on the industry and market factors. Accordingly, the method for including this analysis in the determination of the remuneration reference rate became a disagreed matter.

The industry and market factor analysis left open the question of the relationship between the notional whole of life income for GPs (I_{gp}) and the market norm for the individual career models. A key issue still to be addressed is should I_{gp} reflect the approximate position of the market norm derived from the results of standardised career model, or should any other factors be used to influence the positioning of I_{gp} relative to the market norm? In reaching a final decision on I_{gp} , the impact of the earnings of public sector doctors and the earnings of GPs (or equivalents) overseas also needs to be considered.

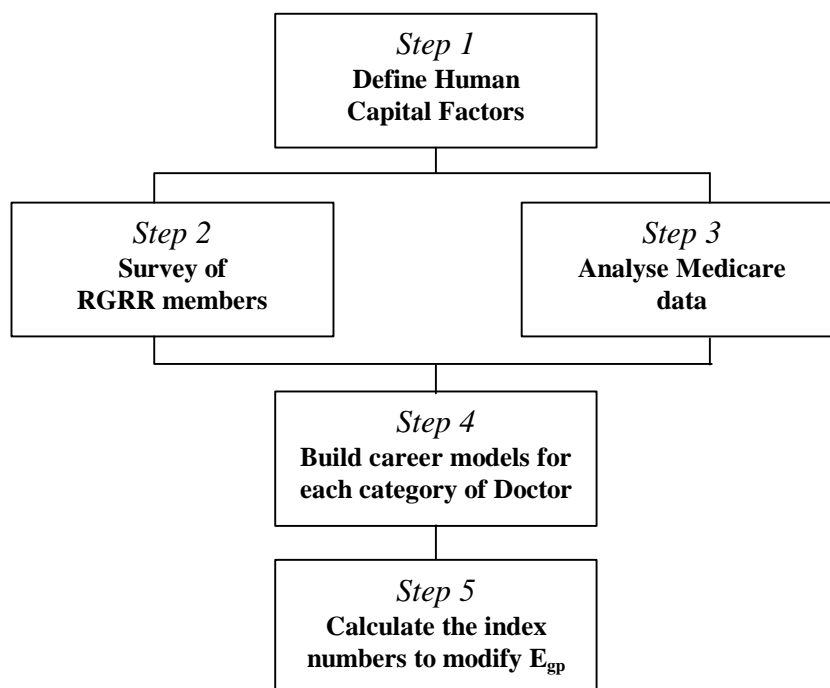
At the conclusion of this work a systematic process for producing a fair and reasonable value for E_{gp} that necessarily mixed quantitative analysis (the career models and the earnings comparisons) with qualitative judgements (the super-added, market and industry, and data bias factors) had been designed. The process did not yield an hourly rate due to a number of disagreed matters within the Board, particularly in relation to whether and how the qualitative factors might be used. Although outside the terms of reference of the RRS, a high level process for converting the hourly rate (E_{gp}) into a rate per unit of work (EW_{gp}) was also designed in response to a request by the Board. This method highlighted the need to take account of a number of non-human capital factors such as the average service mix for GPs and the opportunity for GPs to derive Medicare income from activities other than personal exertion (e.g. by employing locums to cover for periods of leave) in the calculations.

For the purposes of taking the analysis to the next step (to allow the calculation of the index numbers), it was assumed that I_{gp} should be around the market norm. By making this assumption, a reasonable interpretation of the remuneration data might be that (in hourly equivalent terms) E_{gp} should be between \$65 and \$75 per hour. **This result is illustrative, as the impact of the disagreed super-added factors, industry and market factors and the potential data bias have not been included. This remuneration range has, however, been used as a basis for illustrating the calculation of the index numbers.**

MEASURING HUMAN CAPITAL DIFFERENCES BETWEEN DOCTORS

The methodology for measuring the human capital factor differences between doctors was based around the development of standardised career models for the twenty-seven categories of doctor represented on the Reference Group on Remuneration Rates (which was convened to advise on, and review, the career models for doctors) as illustrated in Figure 4ES.

Figure 4ES: Methodology for measuring the human capital factor differences



The standardised career models were designed to quantify the impact of the different human capital factors applying to each doctor category. For example, the general surgeons' model generated an index on the remuneration reference rate (for GPs) that would result in general surgeons earning the same amount (in NPV terms) across their career as GPs. Importantly the models considered only intellectual capital factors (e.g. length and costs of training, requirement for CME) and not the differences in the work performed (as this was considered in the Professional Relativities Study) or the differences in the costs of being in practice (as this was considered in the Practice Costs Study).

Following development of the first draft models, the physician sub-specialty groups advised that they wished to be modeled as one homogeneous group. Accordingly, twenty career models were developed with the eight physician sub-groups being consolidated into one larger group. The principal information source for preparing the models was a survey of RGR members (the "human capital factor survey"). This survey sought information on the typical progression of doctors in each category from undergraduate education through to retirement. Issues covered included the length of the fellowship training program, typical pre and post fellowship training periods, requirement for CME activities, and typical retirement ages. Throughout the whole process of developing the models the Board adopted the principle that typical, rather than minimum or average times, be used.

Results of the human capital factor survey were supplemented by a series of direct enquiries made to medical Colleges and the medical schools at Universities. The other major input into the career models was a comprehensive analysis of the Medicare database. First cross sectional data from 1998/99 were analysed to determine the number of in-scope doctors and their career earnings profiles. Longitudinal data from 1994/95 to 1998/99 were then used to examine issues such as the age at which doctors first accessed Medicare in their chosen specialty and the age at which they retired (including their retirement rate). These data analyses were designed to support and corroborate the information obtained through the human capital factor survey.

Human capital factors

Eight human capital factors that could potentially be included in the career models were identified. Table 6ES summarises the human capital factors considered for inclusion in the career models and the position on each. The Board reached an agreed position on all the human capital factors except the treatment of CME time input.

Table 6ES: Human capital factors considered for inclusion in career models

Factor	Position
1 Length of training	Included in career models, agreed by Board
2 Intensity of training	Included in career models, agreed by Board
3 Requirement for postgraduate training	Included in career models (to the extent supported by the data), agreed by Board
4 Continuing medical education	Four options developed for inclusion in career models, Board decided to defer decision
5 Career span	Included in career models and standardised where appropriate, agreed by Board
6 Career earnings pattern	Excluded from career models, agreed by Board
7 Retirement patterns	Included in career models (to the extent supported by the data), agreed by Board
8 Impact of work in lifestyle	Excluded from career models, agreed by Board

Building the career models for each category of doctor

The standardised career models were developed by defining six major phases over the course of a full medical career as follows:

- Undergraduate education;
- Pre-fellowship;
- Fellowship training;
- Post-fellowship;
- Independent practice; and
- Retirement.

Table 7ES summarises some of the key results of the career models. It presents the earliest, latest and average starting ages for entry into independent practice predicted by the career models. It also shows the average total time spent in training represented in the career models for each medical category by combining the pre-fellowship, fellowship and post fellowship periods (for the purposes of this comparison undergraduate education is excluded).

Table 7ES: Independent practice entry ages and training times

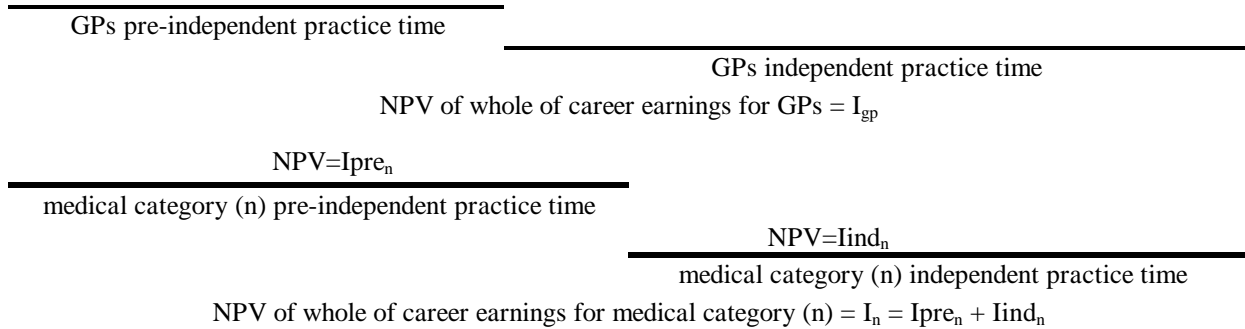
Medical Category	Model Minimum Starting Age	Model Maximum Starting Age	Model Average Starting Age	Average total training time (years)
Anaesthetists	31	37	34.4	10.1
Cardiothoracic Surgeons	35	40	37.1	12.7
Colorectal Surgeons	32	38	34.2	9.8
Dermatologists	31	38	34.0	9.6
Emergency Physicians	32	38	34.6	10.2
ENT Surgeons	31	38	34.2	9.8
General Surgeons	32	38	34.2	9.8
GPs	27	35	30.7	6.3
Neurosurgeons	33	40	36.2	11.8
Obstetricians & Gynaecologists	31	38	34.6	10.3
Ophthalmologists	31	39	35.0	10.6
Orthopaedic Surgeons	32	38	34.6	10.2
Paediatric Surgeons	34	40	36.2	11.8
Physicians	31	42	36.2	11.8
Plastic Surgeons	35	40	36.7	12.3
Psychiatrists	31	39	34.7	10.3
Radiation Oncologists	31	38	34.0	9.6
Rehabilitation Physicians	32	38	34.7	10.3
Urologists	33	38	35.1	10.7
Vascular Surgeons	35	40	37.2	12.8

The specialty that recorded the youngest age by which most of its doctors were in independent practice was GPs. The standardised career models provided for five of the surgical subspecialties having a small proportion of Fellows that enter independent practice at age forty and for a small proportion of physicians to continue entering until age forty-two. The spread from the minimum to the maximum expected age for entering into independent practice was most commonly six to seven years. Physicians had the maximum age spread of eleven years. This spread was deliberately modeled, as this group exhibited the most variation, particularly in post fellowship training activities and time. The standardised career models also showed that GPs spent the least amount of time in training (6.3 years) and vascular surgeons the greatest amount of time (12.8 years).

Calculating the index numbers

The key principle underlying the index numbers model was that it produced the percentage loading that needed to be applied to the reference rate for GPs to enable specialists to earn the same amount as GPs (in NPV terms) over their entire career. The model adjusts only for the agreed intellectual capital factors. Figure 5ES illustrates the concept.

Figure 5ES: Career model comparison



This figure defines the net present value (NPV) of GP earnings over the course of the career as I_{gp} . It defines the NPV of pre-independent practice earnings of medical category (n) as I_{pre_n} , the NPV of independent practice earnings of medical category (n) as I_{ind_n} , with the NPV of the whole of the career earnings being I_n . The hourly rate for medical category (n) is simply that which results in:

$$I_{pre_n} + I_{ind_n} = I_{gp}$$

The career model assumptions and E_{gp} defined every variable in this calculation except for E_n . The formula can therefore be rearranged to calculate E_n . This approach increments E_{gp} to produce E_n (in theory E_n could be below E_{gp} but this situation does not occur in practice as GPs have the shortest training time). Put another way, the hourly rate for medical category (n) is calculated to ensure that any income lost (either through lower training income or lower available practice hours) by a doctor's decision to pursue further training (relative to a GP) rather than independent practice is regained over the course of a career through a higher hourly rate.

Illustrative index numbers

The results of using the index numbers model for the remuneration reference rate in the range \$65 to \$75 per hour are illustrated in Table 8ES. For the 'base model' (where the remuneration reference rate is \$70 per hour) the results are shown in both index number and dollar terms. Review of the data showed a variation range, purely in terms of intellectual capital factors of 31% (1.00 for GPs to 1.31 for vascular surgeons). It also demonstrated that the range of percentage loadings narrows as E_{gp} reduces and expands as E_{gp} increases. This trend is consistent with expectations as increasing the remuneration reference rate has the effect of increasing the differential between GPs independent practice income and specialists training income. Because of their later entry into independent practice, specialists then have to earn at a higher rate to achieve the same lifetime income as GPs.

Table 8ES: Index number variations with E_{gp}

Medical Category	GP Reference Rate					
	\$65	\$67.50	Base Model	Base Model	\$72.50	\$75
Anaesthetists	1.17	1.17	1.18	\$82.31	1.18	1.18
Cardiothoracic Surgeons	1.28	1.29	1.30	\$91.03	1.31	1.32
Colorectal Surgeons	1.17	1.18	1.18	\$82.77	1.19	1.19
Dermatologists	1.15	1.16	1.16	\$81.46	1.17	1.17
ENT Surgeons	1.17	1.18	1.18	\$82.83	1.19	1.19
Emergency Physicians	1.17	1.17	1.18	\$82.54	1.18	1.19
General Surgeons	1.17	1.18	1.18	\$82.77	1.19	1.19
General Practitioners	1.00	1.00	1.00	\$70.00	1.00	1.00
Neurosurgeons	1.25	1.26	1.26	\$88.54	1.27	1.28
Obstetricians & Gynaecologists	1.16	1.16	1.17	\$81.85	1.17	1.18
Ophthalmologists	1.19	1.20	1.21	\$84.41	1.22	1.22
Orthopaedic Surgeons	1.19	1.20	1.20	\$84.19	1.21	1.21
Paediatric Surgeons	1.25	1.26	1.26	\$88.55	1.27	1.28
Physicians	1.22	1.22	1.23	\$86.30	1.24	1.25
Plastic Surgeons	1.28	1.29	1.29	\$90.55	1.30	1.31
Psychiatrists	1.17	1.17	1.18	\$82.43	1.18	1.19
Radiation Oncologists	1.17	1.17	1.18	\$82.49	1.18	1.18
Rehabilitation Physicians	1.16	1.16	1.17	\$81.92	1.18	1.18
Urologists	1.20	1.21	1.22	\$85.09	1.22	1.23
Vascular Surgeons	1.29	1.30	1.31	\$91.37	1.31	1.32

The base model assumed CME time input of 120 hours for GPs and 200 hours for specialists. This was one of the four CME input time modelling options. The others involved using the one band for CME time (all doctors have the same CME), three-bands (GPs 120 hours, physicians and ophthalmologists 230 hours, all other doctors 170 hours) and four-bands (GPs 120 hours, psychiatrists and anaesthetists 200 hours, physicians and ophthalmologists 230 hours, all other doctors 170 hours). As the Board decided not to choose from this options within the RRS, the effect of using all four options for the base model (E_{gp} of \$70) is illustrated in Table 9ES. To assist with the interpretation of the data, the number and proportion of doctors (in-scope for the RRS) in each category as drawn from the Medicare database in 1998/99 has been included in the table.

Table 9ES: Index number variations CME time input option for the base model

Medical Category	Number of Doctors ⁽¹⁾	Proportion of total	CME time option (number of bands)			
			One	Two	Three	Four
Anaesthetists	2,022	6.5%	1.12	1.18	1.16	1.18
Cardiothoracic Surgeons	101	0.3%	1.24	1.30	1.28	1.28
Colorectal Surgeons ⁽²⁾	81	0.3%	1.13	1.18	1.16	1.16
Dermatologists	298	1.0%	1.11	1.16	1.14	1.14
ENT Surgeons	329	1.1%	1.13	1.18	1.16	1.16
Emergency Physicians	91	0.3%	1.13	1.18	1.16	1.16
General Surgeons ⁽²⁾	1,100	3.5%	1.13	1.18	1.16	1.16
General Practitioners	17,836	57.4%	1.00	1.00	1.00	1.00
Neurosurgeons	104	0.3%	1.21	1.26	1.24	1.24
Obstetricians & Gynaecologists	907	2.9%	1.12	1.17	1.15	1.15
Ophthalmologists	708	2.3%	1.15	1.21	1.23	1.23
Orthopaedic Surgeons	659	2.1%	1.15	1.20	1.18	1.18
Paediatric Surgeons	47	0.2%	1.21	1.26	1.24	1.24
Physicians	4,212	13.6%	1.18	1.23	1.25	1.25
Plastic Surgeons	223	0.7%	1.24	1.29	1.27	1.27
Psychiatrists	1,735	5.6%	1.13	1.18	1.16	1.18
Radiation Oncologists	146	0.5%	1.13	1.18	1.16	1.16
Rehabilitation Physicians	122	0.4%	1.12	1.17	1.15	1.15
Urologists	223	0.7%	1.16	1.22	1.20	1.20
Vascular Surgeons	111	0.4%	1.25	1.31	1.28	1.28
Total number of doctors	31,055	100%				

(1) Source Medicare database 1998/99

(2) General Surgeons numbers reduced by 81 Colorectal Surgeons as advised by the Colorectal Surgical Society of Australia

Review of the data in Table 9ES demonstrated that CME had a significant impact on the index numbers. As expected, use of either the three or four band system reduced the range of the index numbers from 1.00 - 1.31 for the two-band system down to from 1.00 - 1.28. The use of a single band produced the narrowest index numbers range from 1.00 to 1.25. In term of relativities between the groups, as expected the categories most affected by the three band system were physicians and ophthalmologists (increase in index numbers by 0.02 while the other categories index numbers typically reduce by 0.02 relative to the two-band system). In the four-band system psychiatrists and anaesthetists maintained their index numbers, physicians and ophthalmologists increased their index numbers by 0.02 while the other categories index numbers typically reduced by 0.02 relative to the two-band system.

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