

Supplementary Appendix

Supplementary Methods 1. sources of information used to determine consultation fee schedules for reference countries and description of designated fee

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Supplementary Table 1. The ratio of hourly consultation fee compared to hourly minimum wage of 3 countries with different consultation fees according to time spent

Supplementary Figure 1. Panel A~E shows the correlation between consultation length and percentage of patients responding that doctors spend enough time with patients(A), annual number of physician visit (B), number of consultation per doctor(C), the length of hospital stay(D) and hypertension admission rate per 100,000 (E)

Supplementary Figure 2. Panel A~C shows the correlation between the ratio of consultation fee and hourly minimum wage and annual number of physician visit(A), number of consultation per doctor(B) and the length of hospital stay(C).

Supplementary Figure 3. The correlation between the compensation ratio of HgBA1C/consultation and of brain CT/consultation(A) and brain MR/consultation (B).

Supplementary Methods 1. sources of information used to determine consultation fee schedules for reference countries and description of designated fee

Information regarding consultation fee schedules for each country was collected through the websites specified below. All of these websites provide information concerning fee schedules for public healthcare; basic consultation fees for non-specialists are referenced. Currencies are Australian dollar for Australia, Euro for Belgium, France and Germany, Canadian dollar for Canada, and US dollar for the US. For Korea, Japan, and Taiwan, where the relative value unit is used for all healthcare service items, the relative value is shown with a conversion factor to derive the actual fee.

Australia : routine hours consultations in MBS quick guide at https://www.ausdoc.com.au/sites/default/files/mbs_quick_guide_jan2021.pdf (effective Jan, 2021, last access, 15-Jun-2021)

Item number 3 : \$17.50 (Level A) Brief

Item number 23 : \$38.75 (Level B) Standard < 20 mins

Item number 36 : \$75.05 (Level C) Long 20-40 mins

Item number 44 : \$111.05 (Level D) Prolonged \geq 40 mins

Belgium : Tarifs ; médecins - consultations et visites ; 01-01-2021 at <https://www.riziv.fgov.be/fr/themes/cout-remboursement/par-mutualite/prestations-individuelles/prix/Pages/medecin-partie01.aspx> (effective Jan, 2021, last access, 15-Jun, 2021)

Numéro de code 101032 : Consultation au cabinet par un médecin généraliste € 22,61

Numéro de code 101076 : Consultation au cabinet par un médecin généraliste accrédité € 27,06

Canada (British Columbia) : Family Medicine Consultation in MSC Payment Schedule at <https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/msp/physicians/payment-schedules/msc-payment-schedule> (effective, 1-Nov-2020, last access, 15-Jun, 2021)

Item number 00100 : Consultation - in office: (age 2 - 49) \$ 77.15

(Description) Consultations apply when a medical practitioner, or a health care practitioner, in the

light of his/her professional knowledge of the patient and because of the complexity, obscurity or seriousness of the case, requests the opinion of a family physician competent to give advice in this field. A consultation must not be claimed unless it was specifically requested by the attending practitioner. The service consists of the initial services of FP consultant, including a history and physical examination, review of x-rays and laboratory findings, necessary to enable him/her to prepare and render a written report, including his/her findings, opinions and recommendations, to the referring practitioner.

Item number 00100 : Visit - in office (age 2-49) \$ 31.61

(Description) For any condition(s) requiring partial or regional examination and history - includes both initial and subsequent examination for same or related condition(s)

Item number 00120: Individual counselling - in office (age 2-49) \$ 56.41

(Description) For a prolonged visit for counselling (minimum time per visit – 20 minutes). Documentation of the effect(s) of the condition on the patient and what advice or service was provided is required.

Canada (Manitoba) : General practice, Office, home visits in MANITOBA PHYSICIAN'S MANUAL at <https://www.gov.mb.ca/health/documents/physmanual.pdf> (effective 1-Apr-2021, last access, 15-Jun, 2021)

Item number 8540 : Complete History and Physical Examination \$ 86.15

(Description) This is a service provided to a patient, which will usually comprise of a full patient history, an inquiry into and an examination of all relevant parts or systems required to make a diagnosis or differential diagnosis, a review of results of investigations ordered by the physician, a complete written or electronic record and advice to the patient during the visit, and/or later by telephone, if appropriate.

Item number 8509 : Regional Basic Visit—Regional or Subsequent Visit \$ 26.99

(Description) This is a service rendered to a patient who consults the physician for a condition— usually relatively minor. The assessment of the patient's condition is problem focused and little or no physical examination is included. Generally, less than ten minutes of physician time is

required.

Item number 8529 Regional Intermediate Visit—Regional or Subsequent Visit or Well Baby Care \$ 37.8

(Description) This is a service provided to a patient which shall be comprised of a history of the presenting complaint(s), an examination of the parts or systems related to the presenting complaint(s), a review of all pertinent investigations, a complete written record and advice to the patient. The visit shall be a minimum of ten minutes of physician time.

Canada (Ontario) : Consultation and visits, FAMILY PRACTICE & PRACTICE IN GENERAL in Schedule of Benefits, Physician Services Under the Health Insurance Act at <https://www.health.gov.on.ca/en/pro/programs/ohip/sob/> (effective,14-Mar-2021, last access, 15-Jun, 2021)

Item number A005 : Consultation..... \$84.45

Item number A911 : Special family and general practice consultation..... \$144.75

(Description) This service is a consultation rendered by a GP/FP physician who provides all the elements of a consultation and spends a minimum of fifty (50) minutes of direct contact with the patient exclusive of time spent rendering any other separately billable intervention to the patient.

Item number A912 : Comprehensive family and general practice consultation \$217.15

(Description) This service is a consultation rendered by a GP/FP physician who provides all the elements of a consultation and spends a minimum of seventy-five (75) minutes of direct contact with the patient exclusive of time spent rendering any other separately billable intervention to the patient.

Item number A006 Repeat consultation..... \$45.90

Canada (Quebec) : CONSULTATION, EXAMEN ET VISITE in MANUEL, Visites sur rendez-vous in Rémunération à l'acte, Médecins omnipraticiens at <https://www.ramq.gouv.qc.ca/en>(effective 5- may-2021, last access, 15-Jun, 2021)

Patient non vulnérable inscrit, Visite de prise en charge

Item number 15801 Clientèle inscrite de 500 patients ou plus, En cabinet ou à domicile en lien avec les activités du médecin en cabinet \$ 99.40

Visite de suivi

Item number 15804 Clientèle inscrite de 500 patients ou plus En cabinet ou à domicile en lien avec les activités du médecin en cabinet \$ 49.15

France : Tarifs conventionnels des médecins généralistes en France métropolitaine at <https://www.ameli.fr/medecin/exercice-liberal/remuneration/tarifs-generalistes/tarifs-metropole> (effective 29-Dec-2020, last access, 15-Jun, 2021)

C : consultation au cabinet € 23,00

G : consultation au cabinet majorée de la majoration pour le médecin généraliste €25,00

Germany : Allgemeine Beratungen und Untersuchungen at <http://www.e-bis.de/goae/defaultFrame.htm> (effective, 2020, last access, 23-Jun, 2021)

Item number 5 Symptombezogene Untersuchung € 4,66

Item number 6 Vollständige körperliche Untersuchung mindestens eines der folgenden Organsysteme: alle Augenabschnitte, der gesamte HNO-Bereich, das stomatognathe System, die Nieren und ableitenden Harnwege (bei Männern auch gegebenenfalls einschließlich der männlichen Geschlechtsorgane) oder Untersuchung zur Erhebung eines vollständigen Gefäßstatus gegebenenfalls einschließlich Dokumentation € 5,83

Item number 7 Vollständige körperliche Untersuchung mindestens eines der folgenden Organsysteme: das gesamte Hautorgan, die Stütz- und Bewegungsorgane, alle Brustorgane, alle Bauchorgane, der gesamte weibliche Genitaltrakt (gegebenenfalls einschließlich Nieren und ableitende Harnwege) gegebenenfalls einschließlich Dokumentation € 9,33

Item number 8 Untersuchung zur Erhebung des Ganzkörperstatus, gegebenenfalls einschließlich Dokumentation € 15,15

Japan : 第1章 基本診療料 in 診療点数早見表, at <http://2020.mfeesw.net/x15/x23/> (effective 2020, last access, 23-Jun, 2021). Japanese fees are relative value unit (RVU) multiplied by 10 Japanese Yen.

Item number A000 初診料 RVU 288点

Item number A 0 0 1 再診料 RVU 72点

Korea : 제1장 기본진료료, 외래환자 진찰료 (Outpatient Care) in 건강보험 요양급여비용, at <https://repository.hira.or.kr/handle/2019.oak/2540> (effective Feb, 2021, last access, 23-Jun, 2021), <https://www.medifonews.com/news/article.html?no=153408> (last access, 23-Jun, 2021). Korean fees are RVU multiplied by 87.6 Korean Won

Item number AA154 초진 진찰료 (New Patient) RVU 188.11

Item number AA254 재진 진찰료 (Established Patient) RVU 134.47

Taiwan : 醫療服務給付項目, 一般門診診察費 at https://www.nhi.gov.tw/Content_List.aspx?n=58ED9C8D8417D00B (effective 13-Apr-2020, last access, 31st March, 2021). Taiwanese fees are RVU multiplied by 0.9 New Taiwan dollar(NT\$).

Item number 00101B, 00102B, 00105B, 00106B, 00107B, 00108B. 一般門診診察費 - 醫院門診診察費 (不含牙科門診) RVU 260

Item number 00109C,00111C, 一般門診診察費 - 基層院所門診診察費 RVU 358

The US : Medicare Physician Fee Schedule. Evaluation and Management office visit fee at https://www.aafp.org/journals/fpm/blogs/gettingpaid/entry/em_rvus.html, at <https://yes-himconsulting.com/2021-medicare-physician-fee-schedule-final-rule-concludes-office-outpatient-e-m-code-updates/>, at <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched>, (effective 1st-Dec-2020, last access, 31st March, 2021)

Item number 99202 level2 \$ 75.08

Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: an expanded problem focused history; an expanded problem focused examination; and straightforward medical decision making. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of low to moderate severity. Typically, 20 minutes are spent face-to-face with the patient and/or family.

Item number 99203 level3 \$ 109.05

Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: an expanded problem focused history; an expanded problem focused examination; and straightforward medical decision making. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate severity. Typically, 30 minutes are spent face-to-face with the patient and/or family.

Item number 99204 level4 \$ 165.9

Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: a comprehensive history; a comprehensive examination; and medical decision making of moderate complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Typically, 45 minutes are spent face-to-face with the patient and/or family.

Item number 99205 level5 \$ 208.45

Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: a comprehensive history; a comprehensive examination; and medical decision making of high complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Typically, 60 minutes are spent face-to-face with the patient and/or family.

Supplementary Methods 2. Sources of information used to determine fees for HgBA1C, brain CT and brain MRI for reference countries and description of designated services

Currencies are Australian dollar for Australia, Euro for Belgium, France and Germany, Canadian dollar for Canada, US dollar for the US. For Korea, Japan and Taiwan where relative value unit (RVU) is

used for all health care service items, relative value is shown with conversion factor to derive actual price.

Australia :

MBS online, Medicare Benefits Schedule at <http://www9.health.gov.au/mbs/search.cfm> (last access, 16th-Jul-2021)

Item number 66551 Quantitation of glycated haemoglobin performed in the management of established diabetes \$16.80

Item number 56007 Computed tomography—scan of brain with intravenous contrast medium \$256.05

Item number 63001 MRI—scan of head (including MRA, if performed) for tumour of the brain or meninges \$403.20

Belgium ; Tarifs des honoraires, prix et remboursements at <https://www.riziv.fgov.be/fr/themes/cout-remboursement/par-mutualite/prestations-indivuelles/prix/Pages/default.aspx#.WK6xZ1U19yx> (effective Jan, 2021, last access, 15-Jun, 2021)

Hémoglobine glyquée (HbA1C) € 8.16

Item number 0,533897 Résonance magnétique nucléaire € 175.34

Canada (British Columbia)

SCHEDULE OF FEES For the Laboratory Services. at http://www.bccss.org/bcaplm-site/Documents/Programs/laboratory_services_schedule_of_fees.pdf (effective, June 21,2020, last access 8, July, 2021), MSC Payment Schedule at <https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/msp/physicians/payment-schedules/msc-payment-schedule> (effective May,1 2021, last access, 15-Jun, 2021). For brain CT, only professional fees are listed which only reflects the physician workload.

Item number 91745 Hemoglobin, A1C \$ 5.3

Item number 08691 Brain CT with contrast \$63.86

Canada (Manitoba)

MANITOBA PHYSICIAN'S MANUAL at <https://www.gov.mb.ca/health/documents/physmanual.pdf> (effective 1-Apr-2021, last access, 15-Jun, 2021)

For brain CT and Brain MRI, only professional fees are listed which only reflects the physician workload.

Item number 7112 Infused examination of the brain \$71.66

Item number 7501 Multislice T2 (1 or 2 echoes) \$74.37

Canada : (Ontario)

SCHEDULE OF BENEFITS FOR LABORATORY SERVICES at https://www.health.gov.on.ca/en/pro/programs/ohip/sob/lab/lab_mn2020.pdf (effective July,1, 2020, last access 8, July, 2021), Schedule of Benefits, Physician Services Under the Health Insurance Act at <https://www.health.gov.on.ca/en/pro/programs/ohip/sob/> (last access, 15-Jun, 2021). For brain CT and Brain MRI, only professional fees are listed which only reflects the physician workload.

Item number L093 Glycosylated hemoglobin - HbA1c \$ 7.25

Item number X401 head CT with contrast \$ 64.95

Item number X421 Multi-sequence head MRI \$ 73.35

Canada (Quebec)

Rémunération à l'acte, Médecins omnipraticiens at <https://www.ramq.gouv.qc.ca/en/>(effective 5, may, 2021, last access, 15-Jun, 2021)

For brain CT and Brain MRI, only professional fees are listed which only reflects the physician workload.

Item number 08258 Tomographie par ordinateur (Tête) avec injection de substance de contraste ou avec et sans injection de substance de contraste \$ 56.15

Item number 08570 Imagerie par résonance magnétique (Tête) \$126.05

Because Canadian websites listed only professional fees for brain CT and brain MRI which only

reflects the physician workload and is a fraction of the total fee, the following commercial websites were referenced for the total fee.

Brain CT

Canada Diagnostics Centers at <https://canadadiagnostics.ca/services/computed-tomography-ct/>, (last access 8, July, 2021)

Head CT \$375

Radiologues universitaires de Montréal at https://legerradiologie.qc.ca/images/pdf/leger_prix.pdf (last access 8, July, 2021)

Tomodensitométrie Cerveau avec contraste \$300

Radiologie Varad at <https://www.radiologievarad.com/fr/tarifs/>, (last access 8, July, 2021)

Tomodensitométrie Cerveau avec contraste \$300

Brain MR

Canadian Magnetic Imaging (CMI) at <https://www.canmagnetic.com/scans-rates/> (last access 8, July, 2021)

Routine Brain \$895,

Canadadiagnostic at <http://www.canadadiagnostic.com/info/fees/> (last access 8, July, 2021)

Brain MR \$900

Radiologues universitaires de Montréal at https://legerradiologie.qc.ca/images/pdf/leger_prix.pdf (last access 8, July, 2021)

Imagerie par résonance magnétique avec contrast (cerveau) \$750

France

Centre hospitalier national d'ophtalmologie des Quinze-Vingts at <https://www.15-20.fr/wp-content/uploads/2020/07/labo-tarifs-A3-2020.pdf> (effective July 2020, last access, last access 8, July, 2021), **Classification Commune des Actes Médicaux** at <https://www.ameli.fr/accueil-de-la->

ccam/index.php (last access 8, July, 2021), [TARIFS FORFAITS TECHNIQUES IRM, SCANNER ET TEP at http://www.ameli.fr/fileadmin/user_upload/documents/Nouveaux_tarifs_forfaits_techniques.pdf](http://www.ameli.fr/fileadmin/user_upload/documents/Nouveaux_tarifs_forfaits_techniques.pdf) (effective February 2017, last access 8, July, 2021)

[Hémoglobine glyquée \(HbA1C\) 6,75 €](#)

Brain CT

Item number ACQH002 Scanographie du crâne, de son contenu et du thorax, avec injection intraveineuse de produit de contraste € 50,54

TARIFS FORFAITS TECHNIQUES SCANNER classe 1. Amortis toute classes, forfait plein € 94,53

Total fee for brain CT is the sum of the above 2 fees(€ 145.07).

Brain MR

Item number ACQJ002 Remnographie [IRM] du crâne et de son contenu, avec injection intraveineuse de produit de contraste € 69,0

TARIFS FORFAITS TECHNIQUES IRM 4750 IRM puissance de l'appareil P=1.5T, equipments non amortis forfait plein € 167,4

Total fee for brain MR is the sum of the above 2 fees(€ 236.4)

Germany :

Basislabor: Kohlehydrat- und Lipidstoffwechsel at <http://www.e-bis.de/goae/defaultFrame.htm> (effective, 2020, last access 8, July, 2021), Strahlendiagnostik, Nuklearmedizin, Magnetresonanztomographie und Strahlentherapie at <http://www.e-bis.de/goae/defaultFrame.htm> (effective, 2020, last access last access, 23-Jun, 2021)

Item number 3561 Glykierte Hämoglobine € 11,66

Item number 5370 Computergesteuerte Tomographie im Kopfbereich gegebenenfalls einschließlich des kranio-zervikalen Übergangs, bei zusätzlichen Kontrastmittelgaben €145.71

Item number 5700 Magnetresonanztomographie im Bereich des Kopfes gegebenenfalls einschließlich des Halses , in zwei Projektionen, davon mindestens eine Projektion unter Einschluß

T2-gewichteter Aufnahmen, nach Kontrastmitteleinbringung € 314.75

Japan :

診療点数早見表, 第 3 部 検査 at <http://2020.mfeesw.net/x15/x23/> (effective 2020, last access, 23-Jun, 2021), 診療点数早見表, 第 4 部 画像診断 at <http://2020.mfeesw.net/x15/x23/> (effective 2020, last access, 23-Jun, 2021)

Item number D 0 0 5 -9 ヘモグロビン A 1 c (H b A 1 c) 49点

Item number E 2 0 0 -2 コンピューター断層撮影 (C T 撮影) 造影剤使用加算 1,520点

Item number E 2 0 3 コンピューター断層診断 450点

Total RVU for brain CT is the sum of E200-2 and E203 (1,970 点).

Item number E 2 0 2 -2 1.5テスラ以上 3 テスラ未満の機器による場合, 1,330点

Item number E 2 0 3 コンピューター断層診断 450点

Total RVU for brain MR is the sum of E202-2 and E203 (1,780 点).

Korea :

건강보험 요양급여비용, at <https://repository.hira.or.kr/handle/2019.oak/2540> (effective Feb, 2021, last access, 23-Jun, 2021)

Item number 누-306 Hemoglobin A1c 77.76

Item number 다-245 HA 461 Brain CT with Contrast Material 1,166.71

Item number 다-245 HI 201, HJ 201, HJ201-4 Brain MR with Contrast Material 3,730.06

Taiwan :

醫療服務給付項目, 一般門診診察費 at https://www.nhi.gov.tw/Content_List.aspx?n=58ED9C8D8417D00B (effective 13, Apr, 2020, last access, 31st March, 2021)

Item number 09006C 糖化血紅素 HbA1c (Hemoglobin A1c) 200

Item number 33071B 電腦斷層造影 - 有造影劑 computered tomography -with contrast 4560

Item number 33085B 磁振造影 - 有造影劑 Magnetic resonance imaging with contrast 11500

The US :

2020 Clinical Diagnostic Laboratory Fee Schedule at [https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ClinicalLabFeeSched/Clinical-Laboratory-Fee-Schedule-Files\(effective](https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ClinicalLabFeeSched/Clinical-Laboratory-Fee-Schedule-Files(effective%20Jan%202020)) Jan, 2020, last access 31st March, 2021), Procedure Price Lookup at <https://www.medicare.gov/procedure-price-lookup/> (last access 31st march 2021)

Item number 83036 Glycosylated hemoglobin test \$ 9.71

Item number 70406 Computed tomography, head or brain; with contrast material(s) - Hospital outpatient departments

Total Cost \$233 (Doctor Fee \$55, Facility Fee \$178)

Item number 70552 Magnetic resonance imaging, brain (including brain stem); with contrast material(s)- Hospital outpatient departments

Total Cost \$455 (Doctor Fee \$87, Facility Fee \$368)

Table S1. The ratio of hourly consultation fee compared to hourly minimum wage of 3 countries with different consultation fees according to time spent

	Australia	Canada (British Columbia)	Canada (Manitoba)	Canada(Ontario)	USA
Consultation fee, Item number and time	38.75 (Level B, < 20 minutes)	56.41 (00120 minimum time per visit – 20 minutes)	26.99 (8509 less than ten minutes)	144.75(A911 a minimum of 50 minutes)	75.08 (99202 Level 2, 20 minutes)
	75.05 (Level C, 20-40 minutes)			217.15(A912 minimum of 75 minutes)	109.95(99203, Level 3, 30 minutes)
	111.05 (Level D, ≥ 40 minutes)				165.9(99204 Level 4, 45 minutes) 208.45(99205 Level 5, 60 minutes)
Hourly minimum wage	19.84	14.6	11.9	14.25	7.25
ratio of consultation fee per hourly minimum wage(min)	5.86 (Level B),		13.61	8.123(A911) *	20.71(Level 2), 18.20(Level 3), 22.89(Level 4)
ratio of consultation fee per hourly minimum wage(average)	5.67(Level C)			9.75(A911) *	24.85(Level 2), 22.75(Level 3), 25.17(Level 4)
ratio of consultation fee per hourly minimum wage(Max)	11.35 (Level C),	11.59		12.19(A911) *, 12.19(A912)	31.07(Level 2), 30.33(Level 3), 27.46(Level 4), 28.75(Level 5)
	8.40(Level D)				

*minimum, maximum, and average time for A911 was deemed 50, 75 (minimum time for A912, and 62.5 minutes, respectively.