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IMPACT OF COVID-19 PANDEMIC ON GENERAL PRACTICES: RAPID REVIEW

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
AAMC	Association of American Medical College
AIM	Agence Intermutualiste
ASPE	Assistant Secretary for Planning and Evaluation
CCM	Chronic Care Management
ED	Emergency Department
EFPC	European Forum for Primary Care
EGPRN	European General Practice Research Network
EMR	Electronic Medical Record
EQuiP	European Society for Quality and Patient Safety in General Practice/Family Medicine
FTE	Full-Time Equivalent
GDP	Gross Domestic Product
HCS	HealthCare System
HCW	HealthCare Workers
h/w	Hours per week
ICU	Intensive Care Unit
IMA	Intermutualistisch Agentschap
MHPSS	Mental Health and Psychosocial Support
MNS	Mental, Neurological and Substance use
NCD	Noncommunicable disease
NHCS	National Health Service Corps
NGO	Nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
PHC	Primary HealthCare
PCP	Primary Care Provider
PCT	Primary Care Team
PH	Public Health
PPE	Personal Protective Equipment
RR	Rate Ratio
UHC	Universal Health Coverage
VA	Veterans Administration
WB	World Bank
WHO	World Health Organization
WONCA	World Organization of Family Doctors
WTE	Whole-time equivalent

SYNTHESE

CONTEXT

Tijdens de eerste zes maanden van 2022 werden de artsenquota voor 2028 vastgelegd in een akkoord tussen de federale instellingen en de deelstaten. Ter voorbereiding van de toekomstscenario's voor 2029, heeft de Belgische Minister van Volksgezondheid de Planningscommissie Medisch Aanbod gevraagd om voorbereidend onderzoek te verrichten. In het kader van deze onderzoeksopdracht was er een vraag naar de impact van COVID-19 op het medisch aanbod, en dan met name op de huisartsgeneeskunde. Het doel van deze KCE-studie is de werking van de Planningscommissie te ondersteunen door het uitvoeren van een snelle analyse van de literatuur betreffende dit thema.

METHODEN

Om aan deze vraag tegemoet te komen binnen een periode van vier maanden, werd een snelle literatuurstudie (rapid review) uitgevoerd in twee databanken (PUBMED en EMBASE) op 9 augustus 2022. Na het verwijderen van de duplicaten werden 225 artikels verder onderzocht op basis van titel en abstract, waarvan 58 artikels werden geselecteerd voor een volledige lezing. Daarnaast werden er ook 49 bijkomende publicaties geïdentificeerd die refereren naar een geselecteerd artikel, geciteerd worden door een geselecteerd artikel of rechtstreeks werden doorgegeven door de experten van de Planningscommissie en het KCE. De rapporten van het KCE en de Belgische gegevensbronnen (Belgisch Kankerregister, IMA-AIM, Sciensano) werden eveneens geraadpleegd. Van de 107 publicaties die integraal onderzocht werden, werden er uiteindelijk 53 geselecteerd waaruit relevante informatie gehaald kon worden.

Deze analyse is gebaseerd op het kader dat door Anderson *et al.*[a] werd voorgesteld waarbij factoren gecategoriseerd worden op basis van hun potentieel effect op het aanbod of de vraag alsook de impact van bepaalde strategieën, zoals het gebruik van technologie of het overdragen van taken.

Figuur 1 – Noodzakelijke gegevens voor de personeelsplanning volgens het model van Anderson[1]

Belangrijkste factoren die gelinkt zijn aan de vraag:

- Bevolkingskarakteristieken: leeftijd, geslacht, woonplaats, migratie, handicaps
- Epidemiologie van aandoeningen: incidentie/prevalentie, multimorbiditeit
- Gebruik van gezondheidszorg: ziekenhuis, ambulant, eerstelijnszorg, langetermijnzorg, gemiddelde duur van consultaties
- Onvervulde behoeften: ongelijke toegang tot zorg tussen verschillende subgroepen van de bevolking

Belangrijkste factoren die gelinkt zijn aan het aanbod:

- Instroom: aantal studenten, uitvalpercentage, immigratie, herintredingspercentages
- Uitstroom: pensioneringen, ontslagen, emigratie, verloven (moederschap, vaderschap, studie, sabbatical, ziekte), overlijdens (en oorzaak van overlijden)
- Kenmerken van het personeelsbestand: leeftijd, geslacht, etniciteit, religie, deeltijdsen, skill mix (inclusief vrijwilligers, mantelzorgers en zelfmanagement)
- Personeelstekorten: aantal vacatures, onevenwichten tussen steden en platteland

Alternatieve scenario's:

- Evolutie van de skill mix: empirische evaluatie van het effect van substituties in de rollen van zorgverleners onderling
- Nieuwe zorgmodellen: empirische evaluaties van het effect van nieuwe zorgmodellen
- Opkomende technologische vooruitgang: empirische evaluatie van het effect van rolvervanging tussen zorgverleners en technologie (artificiële intelligentie en robots).

[a] Deze door Anderson et al. voorgestelde noodzakelijke gegevens zijn gebaseerd op de hypotheses van de internationale modellen voor personeelsplanning die Ono et al. (2013) hebben onderzocht. Referentie: Anderson M, O'Neill C, Macleod Clark J, Street A, Woods M, Johnston-Webber C, et al. Securing a sustainable and fit-for-purpose UK health and care workforce. Lancet. 2021;397(10288):1992-2011. Vertaling van de Engelse versie door het KCE.

In deze synthese worden de resultaten overlopen, met extra aandacht voor de publicaties met Belgische gegevens. Voor bijkomende voorbeelden en nuances verwijzen we naar de Engelstalige tekst (in het tweede deel van dit document).

DE IMPACT VAN COVID-19 OP DE ZORGVRAAG IN DE HUISARTSENPRAKTIJK

Geobserveerde impact op niveau van de huisartsenpraktijken

De literatuur beschrijft wereldwijd een tijdelijke daling van de routineactiviteiten in de eerstelijnszorg tijdens de eerste golven van de pandemie, en dan met name in het aantal face-to-face contacten die door de gezondheidsautoriteiten werden afgeraden. De OESO meldt bijvoorbeeld voor april 2020 (in vergelijking met april 2019) een daling van het aantal consultaties in de eerstelijnszorg van ongeveer 25-30% in Frankrijk en Engeland, en een daling van ongeveer 50% in België. Uit een enquête die bij 132 Vlaamse huisartsen werd afgenomen zou het aantal gewone consultaties aan het begin van de pandemie zelfs met 70-80% zijn afgenomen.

Deze daling betrof zowel chronische aandoeningen als acute problemen. Er trad ook een daling op van andere routineactiviteiten (bv. -74% voor de radiologievoorschriften en -50% voor de laboratoriumtests volgens Intego), voornamelijk tijdens de eerste golf van de pandemie. Daarnaast werd er eveneens een daling in het aantal geneesmiddelenvoorschriften voor acute aandoeningen waargenomen terwijl het aantal geneesmiddelenvoorschriften voor chronische aandoeningen onveranderd bleef.

Tegenover deze daling van het aantal face-to-face consultaties staat echter een sterke toename van andere, soms nieuwe, taken. Zo werden de verscherpte hygiënemaatregelen in de huisartsenpraktijken vaak genoemd als een belangrijk verplichting, om nog maar te zwijgen van de investeringen die nodig waren voor een adequate uitrusting (maskers, ontsmettingsmiddel voor de handen, ventilatie van de wachtkamers, ontsmetting van de apparatuur tussen patiënten, enz.). Een andere oorzaak voor de verhoogde werkdruk was de noodzaak om de kennis over de epidemie, de preventieve maatregelen en de beschikbare behandelingen voortdurend bij te werken om de vele vragen van patiënten naar behoren te kunnen beantwoorden, hen gerust te stellen en hen kwaliteitsvolle zorg te verlenen. De toename van de nood aan geestelijke gezondheidszorg, voornamelijk bij patiënten die reeds met psychische problemen kampten, werd door verscheidene auteurs aangehaald. Ook de psychosociale gevolgen van de epidemie baarden veel huisartsen zorgen.

Buiten hun eigen praktijk waren huisartsen ook talrijk vertegenwoordigd in de gemeenschappelijke strijd tegen de pandemie: beheer van screeningtests, triageposten, behandeling van milde en matige gevallen van COVID-19, gegevensverzameling, verspreiding van preventieboodschappen, en later opvolging van de vaccinaties, enz. Voor deze activiteiten werkten de huisartsen vaak in multidisciplinaire teams, met name binnen de COVID-centra die door de huisartsenpraktijken werden georganiseerd buiten de werkuren en zelfs 7 dagen op 7.

Ook het verlenen van zorg op afstand en de bijkomende administratie (ziektebriefjes, digitale voorschriften, schrijven van e-mails, enz.) werden ook vermeld als belangrijke oorzaken voor de toename van de werkdruk. Uit de analyse van de Belgische gegevens van het IMA blijkt dat er ongeveer 11 miljoen teleconsultaties plaatsvonden in 2020, voornamelijk door huisartsen (85%) en specialisten (12,5%). Over heel 2020 vonden er meer dan 52 miljoen contacten plaats (alle soorten opgeteld) tegenover ongeveer 50 miljoen in 2019, hetgeen een stijging betekent van 5,3%. Het gebruik van telegeneeskunde werd in een aantal studies aangehaald als een bron van stress die het werk moeilijker maakt (voornamelijk bij patiënten die voorheen nog niet gekend waren door de arts) en soms tot een dubbele consultatie leidde (eerst via de telefoon of video, daarna face-to-face).

In een Belgische enquête gaven huisartsen aan dat de werkbelasting tijdens de eerste golf van de pandemie (maart tot mei 2020) aanvaardbaar was, maar dat ze in de tweede golf (september 2020) ondraaglijk hoog was. De oorzaken hiervan waren vooral de oneindige stroom aan wijzigingen van klinische en organisatorische richtlijnen, de bijkomende administratieve belasting en communicatie met patiënten.

Potentiële impact op de vraag in de toekomst

Er wordt al verschillende jaren een stijging voorspeld van de zorgvraag in de toekomst (omwille van de vergrijzing en de toename van het aantal personen met multimorbiditeit) maar de COVID-19-pandemie zou deze nog kunnen versterken. In deze rapid review werden verschillende potentiële impacts van de pandemie geïdentificeerd op elementen die invloed hebben op de planning van de zorgvraag.

Een eerste factor is **COVID-19 zelf**. Volgens de WGO is het nog niet mogelijk om het zorgvolume te becijferen dat in de toekomst nodig zal zijn voor de behandeling van COVID-patiënten in de komende golven. Aangezien de meeste gevallen van COVID-19 mild zijn en in de eerstelijnszorg kunnen worden behandeld, zullen zij de werklast van de huisartsen verder doen toenemen. Hetzelfde zou kunnen gelden voor patiënten met **long COVID**, waarvan de incidentie nog niet bekend is en waarvan de diagnose en behandeling een extra belasting voor de eerstelijnszorg zou kunnen vormen.

Een tweede belangrijk aandachtspunt is de **geestelijke gezondheidszorg**. De pandemie heeft een negatieve impact gehad op het mentale en socio-economische welzijn van de bevolking en het is momenteel nog niet mogelijk om de nasleep van deze impact in te schatten. Bovendien heeft het inkrimpen van het medisch aanbod tijdens de pandemie een snelle behandeling van een groot aantal zorgwekkende situaties verhinderd, die dus verergerd zijn. De OESO vat het onderlinge verband tussen de verschillende problemen goed samen: "De COVID-19-crisis heeft een duidelijke impact gehad op de mentale gezondheid, zowel bij mensen die al psychische problemen hadden als bij de bevolking in het algemeen. De landen hebben stappen gezet om de toegang tot geestelijke gezondheidszorg enigszins te vrijwaren. Veel landen hebben ook voorzien in welzijnsondersteuning voor de algemene bevolking, bijvoorbeeld via online advies of hulplijnen. Desondanks heeft de combinatie van de beperking van de capaciteit in de geestelijke gezondheidszorg en de stijging van de vraag hiernaar omwille van de verslechtering van het mentale welzijn van de algemene bevolking geleid tot een risico op bijkomende overbelasting van de geestelijke gezondheidszorg, die in veel landen reeds overbelast was."

Een andere niet te onderschatten impact voor de toekomst is het **inhalen van de door de pandemie veroorzaakte onvervulde zorgbehoefte**. De noodtoestand in de zorg heeft geleid tot een verstoring van de zorg, waardoor de screening, diagnostiek en behandeling van andere aandoeningen dan COVID-19 vertraagd werd. De gevolgen hiervan zijn mogelijk in de komende jaren nog te voelen, omdat ze geleid hebben tot een verslechtering van de gezondheidstoestand van vele personen, en vooral die van de meest kwetsbaren. Er bestaat dan ook een risico dat de ongelijkheid in de zorg nog zal toenemen. De inhaalbeweging wordt nu gemaakt, maar de manier waarop verschilt sterk van land tot land en van aandoening tot aandoening. Zo werd er in België in april 2020 een daling van 43% in de diagnoses van invasieve kanker (in vergelijking met april 2019) opgetekend door het Belgisch kankerregister. Ondanks het feit dat dit aantal later quasi normaliseerde, werden er over de gehele twee jaar van de pandemie nog steeds 2% minder kankerdiagnoses geobserveerd. Dit komt neer op ongeveer 2700 ontbrekende diagnoses. Beleidsmaatregelen om vertragingen te beperken zullen te veel vragen van de reeds overbelaste zorgverleners. Dit zal tot nog meer stress leiden en hen blootstellen aan een verhoogd risico op absenteïsme en burn-out waardoor er een vicieuze cirkel ontstaat.

Daarnaast is het door de patiënten in eigen handen nemen van hun gezondheid een bijkomend element om in het oog te houden. Bepaalde auteurs vr zen dat de daling in lichaamsbeweging, de weinig evenwichtige voedingspatronen en het niet-opvolgen van behandelingen voor chronische aandoeningen tijdens de periode van de pandemie in de toekomst een negatieve impact zou kunnen hebben op de volksgezondheid. In België hebben Vlaamse huisartsen reeds hun bezorgdheid geuit over het verlies van controle bij diabetes, vooral bij patiënten met een lage sociaaleconomische status. Uit hetzelfde onderzoek bleek dat de ondersteuning van het zelfmanagement bij patiënten met chronische aandoeningen verhinderd werd door de tijdelijke werkloosheid van verpleegkundigen en diëtisten in sommige multidisciplinaire praktijken.

Tot slot was het effect van de pandemie ook voelbaar bij **mantelzorgers** die hun socio-economische kwetsbaarheid nog zagen toenemen, hetgeen mogelijk hun beschikbaarheid doet verminderen. Volgens sommige prognoses zullen er in 2035 in Engeland iets meer dan 2 miljoen mantelzorgers nodig zijn. Dit zijn bovendien voorzichtige schattingen omdat er geen rekening gehouden wordt met de toenemende complexe multimorbiditeit. Een zodanige vraag zal moeilijk in te vullen zijn en onvermijdelijk leiden tot een toenemende druk op de gezondheidszorg en de sociale ondersteuning.

Sommige auteurs zijn minder bezorgd en menen dat de pandemie een kleinere impact zal hebben dan verwacht omdat zij enkel een kentering heeft gebracht in de huidige tendens tot overmedicalisering. Zo bleek uit een studie bij de psychiatrische spoedgevallendiensten in Frankrijk dat het aantal consultaties in verband met angst en stress sterker gedaald was dan het aantal consultaties in verband met psychotische problematieken. Op basis van deze bevindingen gingen de auteurs ervan uit dat "sommige personen erin geslaagd waren hun veerkracht te vergroten en een hernieuwde kracht alsook copingstrategieën te vinden tijdens de crisis". Deze hypothese van een daling van onnodige zorg is echter niet geverifieerd; hiervoor zijn meer genuanceerde analyses noodzakelijk. Zo zou het ook kunnen dat een aantal van de patiënten op wie dit betrekking heeft overleden zijn in afwachting van zorg.

DE IMPACT VAN COVID-19 OP HET ZORGAANBOD IN DE HUISARTSENPRAKTIJK

Geobserveerde impact bij individuele huisartsen

Naast de impact op de professionele huisartsenpraktijk had de pandemie ook gevolgen voor de gezondheid van de huisartsen zelf. Zij werden bovendien **zeer vaak blootgesteld aan het virus** en velen van hen kregen zelf ook COVID of zelfs long COVID. Daar komt nog de vermoeidheid bij van lange maanden stresserend en uitputtend werk, die ook hun tol hebben geëist op hun fysieke gezondheid.

De literatuur is het erover eens dat **de pandemie een impact gehad heeft op de geestelijke gezondheid van zorgverleners**. De angst om het virus op te lopen – zowel zijzelf als hun naasten – heeft een directe impact gehad op zowel het gezinsleven als het sociale leven (beperkingen van het aantal contacten per gezin, isolatie, quarantaine). Heel wat artsen hadden moeite met het evenwicht tussen werk en privé, vooral omdat ook zij geconfronteerd werden met het verlies van dierbaren, maar ook van verschillende patiënten. De PRICOV-19-studie, die het welzijn van huisartsen in 33 landen gemeten heeft, toont aan dat 64,5% van de ondervraagde artsen (in 2020 en 2021) risico liepen (op depressie, angst, stress, burn-out, enz.). Daarbij moet worden opgemerkt dat huisartsen die in een groepspraktijk werken het beter lijken te doen dan zij die alleen of met twee werken. Andere studies geven aan dat de artsen die in de eerstelijnszorg werken in vergelijking met andere zorgverleners de hoogste scores hadden voor persoonlijke stress, burn-out en depressie en dat hun werktevredenheid minder was. Het schadelijke effect van de pandemie op de geestelijke gezondheid van zorgverleners werd ook beschreven in verschillende Belgische studies. Hierbij vermelden we ook dat reeds voor de pandemie het risico op burn-out bij huisartsen in een studie van het KCE van 2011 belicht werd (KCE-rapport 165).

Bovendien komt daar een duidelijk **gevoel van frustratie** bij de huisartsen bij over de plaats van de eerstelijnszorg in de aanpak van de pandemie vergeleken met het belang dat aan de ziekenhuizen werd gehecht, en dat net op het moment dat de eerste lijn een gigantische inspanning levert. Het gebrek aan medische maskers en andere persoonlijke beschermingsmiddelen tijdens de eerste golf leidde tot een gevoel van onveiligheid bij de huisartsen. Het gebrek aan communicatie met de gezondheidsautoriteiten en de ziekenhuizen; de steeds veranderende, soms zelfs contradictorische, richtlijnen; het gebrek aan informatie en het gevoel van onvoorspelbaarheid en onzekerheid werden ook als oorzaken van stress aangehaald.

Ook het financiële aspect, en dan met name **de angst voor inkomensverlies** werd aangehaald als oorzaak van stress. In België had de daling van het aantal face-to-face contacten aan het begin van de pandemie ook werkelijk een impact op de inkomsten van huisartsen, die in essentie vergoed worden per handeling. Sommige teams in de eerstelijnszorg moesten hun medewerkers (verpleegkundigen, diëtisten, enz.) op tijdelijke werkloosheid zetten omwille van het inkomstenverlies door de daling in het aantal consultaties en diensten die als "niet-essentieel" beschouwd werden.

Ondanks de negatieve impact, beschrijven bepaalde auteurs ook "**positieve ervaringen**", en dan met name het ontwikkelen van copingstrategieën om een bepaalde coherentie in hun leven te behouden (beperken van discussies over COVID buiten de werkuren, muziek, activiteiten in de buitenlucht, mindfulness, enz.). In België waardeerden de huisartsen vooral de steun van hun collega's, het gevoel van solidariteit, de reorganisatie van het werk om elkaar te ontlasten, de administratieve of verpleegkundige ondersteuning en zelfs de herverdeling van vergoedingen in bepaalde gevallen (tot het RIZIV de teleconsultaties terugbetaalde). De ondersteuning van de

beroepsorganisaties (Cercles, Collège de Médecine Générale, Vlaams Instituut voor de Eerste Lijn (Vivel)) werd eveneens aangehaald.

Potentiële impact op het aanbod in de toekomst

In het model van Anderson omvatten de vraaggerelateerde planningsfactoren de huidige karakteristieken van het personeel zelf (waaronder voltijds of deeltijds werken) en de instroom en uitstroom. Er werden in België voor de pandemie al een aantal waarschuwingen gegeven, met name in verband met de veroudering en de vervrouwelijking van het beroep van arts (dit laatste gaat gepaard met een stijging in het deeltijds werk).

De negatieve impact van de COVID-19-pandemie op de fysieke en mentale gezondheid van de bevolking en de (nog onbekende) omvang van long-COVID zijn reeds vermeld, maar de literatuur haalt ook aan dat dit eveneens zorgverleners kan treffen en zo het aantal zorgverleners kan doen dalen.

Daarnaast zou het trauma dat de pandemie veroorzaakt heeft een blijvende impact kunnen hebben op de mentale gezondheid en professionele betrokkenheid van huisartsen. Een aantal publicaties geven aan dat er een verhoogd risico bestaat op uitstroom (bijvoorbeeld door middel van vervroegde pensionering). Volgens de Power to care studie (Sciensano en KULeuven) bedroeg het aantal zorgverleners in België die van plan waren het beroep te verlaten 28% in september 2021, tegenover 10% voor de crisis (er zijn geen gedetailleerde gegevens beschikbaar per beroepscategorie).

Het aantal huisartsen is echter niet de enige factor waar rekening mee gehouden moet worden in de artsenplanning voor de toekomst. Het zorgaanbod wordt eveneens bepaald door de productiviteit van alle zorgverleners en hun betrokkenheid bij hun werk. Er wordt echter gevreesd dat de pandemie ertoe zal leiden dat een aantal zorgverleners hun werkuren zullen verminderen, voornamelijk om gezondheidsredenen.

Die erosie van de bestaande krachten kan ervoor zorgen dat we in een vicieuze cirkel terecht komen. Minder zorgverleners betekent immers een hogere werkdruk voor de nog werkende zorgverleners die dan op hun beurt een verhoogd risico lopen op absenteïsme en burn-out. Het is moeilijk te voorspellen of deze daling in het aantal artsen gecompenseerd kan worden door een hernieuwd enthousiasme van de jongeren om voor het beroep te kiezen. We hebben geen publicaties gevonden over de impact van de pandemie op het aantal studenten die zich inschrijven aan een faculteit geneeskunde of die huisarts willen worden.

VOORSTELLEN VOOR TOEKOMSTSTRATEGIEËN

Crises zoals de COVID-19 pandemie worden soms beschreven als de ideale gelegenheid om grote veranderingen of zelfs echte hervormingen voor te stellen. Sommige aanbevelingen die in deze rapid review geïdentificeerd werden, zijn zeer algemeen van aard, zoals het belang van een performante eerstelijnszorg, die essentieel is om de demografische, epidemiologische en technologische druk op de gezondheidszorg onder controle te houden. Hierbij merken we op dat we de impact van de COVID-19-pandemie op de volledige gezondheidszorg niet onderzocht hebben en dat we ook de voorstellen van bepaalde internationale organisaties rond de voorbereiding op een mogelijke epidemie in de toekomst (bijvoorbeeld wat opleiding van zorgverleners en verbeteringen aan de infrastructuur betreft) hierin niet hebben opgenomen. De visie op de toekomst van de huisartsgeneeskunde in België vormt op dit moment het onderwerp van verschillende debatten die niet in deze review werden opgenomen.

Over de **zorgvraag** werden weinig aanbevelingen geformuleerd. Deze zijn voornamelijk gericht op het verminderen van onnodige zorg en het streven naar meer duurzaamheid (door de autonomie van patiënten te versterken, de gezondheidsgeletterdheid van de bevolking te verbeteren en te investeren in steun voor niet-professionele zorgverleners).

Met betrekking tot het **zorgaanbod** werden veel meer voorstellen geformuleerd. Ze focussen voornamelijk op zoveel mogelijk zorgverleners in de gezondheidszorg te houden en manieren om dit te doen. Deze voorstellen worden hieronder in 6 categorieën toegelicht (in willekeurige volgorde):

- **Het aantal huisartsen verhogen en hun geografische spreiding optimaliseren**

Er zijn passende wervingsstrategieën nodig, aangezien jonge artsen vaak tot specialisaties worden aangetrokken omwille van het inkomen en het prestige. De Wereldbank pleit voor verschillende

benaderingen: verlaging van de kosten voor het diploma van huisarts, subsidiëring van medische opleidingen of aanpassingen in de terugbetalingen om zo de loonverschillen te verkleinen.

De vergrijzing van de huisartsen is een bijzonder aandachtspunt in België, want volgens sommige schattingen is er momenteel anderhalve jonge huisarts nodig om één huisarts die met pensioen gaat te vervangen (*New deal voor de huisarts).*

Het is ook essentieel om te waken over een goede geografische spreiding van de huisartsen. Zo zijn er in Nederland nog steeds tekorten aan eerstelijnszorgverleners op het platteland, hoewel de planningsmodellen het aantal op te leiden artsen duidelijk inschatten. Uit deze vaststelling blijkt dat planning alleen niet volstaat wanneer ze niet geïntegreerd is in een bredere strategie met initiatieven die gericht zijn op het verbeteren van de werving en het behoud van artsen.

- **Het welzijn van huisartsen bewaken**

Veel auteurs stellen dat het welzijn van zorgverleners in de eerste lijn een prioriteit zou moeten zijn. Een van de belangrijkste voorwaarden is hen een beter evenwicht tussen werk- en privéleven te geven; hetgeen mogelijk zou betekenen dat hun werkomstandigheden moeten veranderen.

Eén factor die hierbij duidelijk geïdentificeerd werd was de nood aan erkenning door de overheden van de centrale rol van de huisarts en het verlenen van systematische steun in overeenstemming met deze rol. Een andere maatregel die wordt voorgesteld ter bescherming van de mentale gezondheid van huisartsen is het aanmoedigen van teamwerk en samenwerkingsverbanden. Tot slot stellen een aantal auteurs ook voor om strategieën te ontwikkelen om oudere zorgverleners te ondersteunen, namelijk door hun kennis en ervaring te valoriseren en hen de gelegenheid te bieden zich professioneel te heroriënteren.

- **Voorstellen tot verandering van de organisatie van het werk**

Uit een enquête bij Belgische huisartsen blijkt dat zij vragende partij zijn om meer betrokken te worden bij beslissingsprocessen rond de organisatie en financiering van hun werk. Uit deze studie kwamen ook een aantal veranderingsvoorstellen voort die overeenkomen met de voorstellen uit de literatuur. Enkele van de vaakst vernoemde voorstellen waren:

  - multidisciplinair werken stimuleren, met name bij de behandeling van chronische aandoeningen en multimorbiditeit;
  - *skills mix* (het delegeren van taken door het introduceren van nieuwe professionele profielen) faciliteren;
  - het gebruik van innovatieve technologische oplossingen (elektronische dossiers, telegeneeskunde, enz.) stimuleren door maatregelen te nemen om gegevens te beschermen en om de digitale kloof niet te laten toenemen;
  - de administratieve lasten verminderen (bijvoorbeeld de recente afschaffing van medische attesten voor een afwezigheid van één dag);
  - verminderen van het aantal artsen die op vervroegd pensioen gaan door een beter evenwicht in de verdeling van de wachten en een beperking van de professionele taken buiten de werkuren.

- **De opleiding van zorgverleners doen evolueren**

De organisatorische veranderingen die hierboven werden opgesomd moeten samengaan met een mentaliteitswijziging die ook een wijziging zal betekenen in de opleiding van artsen en andere zorgverleners. De opleiding van huisartsen zou sterker moeten inzetten op multidisciplinariteit (en zelfs intersectorialiteit), op het gebruik van technologie (zowel tijdens de opleiding als in de praktijk) en het stimuleren van zelfmanagement bij patiënten. Bovendien zouden (toekomstige) huisartsen beter gewapend moeten zijn tegen stress (bijvoorbeeld door het aanleren van self-helpstrategieën).

- **De financieringsmodellen hervormen**

Veel auteurs benadrukken dat het nodig is om de financiering van de eerstelijnszorg grondig te herbekijken. De pandemie heeft voor grote financiële druk gezorgd bij artsen (daling van het aantal consultaties, stijging van de kosten voor persoonlijke beschermingsmiddelen, telegeneeskunde, personeel dat voor testing en vaccinatie werd ingezet, enz.) waardoor de beperkingen van financieringsmodellen op basis van gestelde handelingen (fee-for-service) werden blootgelegd. Uiteraard hebben veel landen, waaronder België, gereageerd door zeer snel verschillende financiële

steunmaatregelen voor huisartsen in te voeren (bv. nieuwe vergoedingscode voor teleconsultaties, financiering voor de aankoop van computerapparatuur, financiële bonus voor extra werk).

- Evaluatiemomenten organiseren

Tot slot vereist het voorspellen van de toekomst ook dat de ervaringen uit het verleden geëvalueerd worden. In het specifieke geval van de COVID-19-pandemie zou deze evaluatie specifiek moeten focussen op de snelle uitbreiding van het aantal consultaties op afstand (wat betreft effectiviteit, patiëntveiligheid, het risico op digitale uitsluiting, werkbelasting, enz.). De impact van de pandemie op het welzijn en de mentale gezondheid van zorgverleners in de eerste lijn moet ook gemeten worden en in de toekomst worden opgevolgd.

Daarnaast is het ook noodzakelijk om indicatoren op de stellen om te evalueren of het zorgaanbod en de competenties van zorgverleners toereikend zijn om tegemoet te komen aan de zorgvraag, en met name de noodzaak van het werken in teamverband. De PaRIS-enquête over indicatoren die door chronische patiënten gerapporteerd worden (PROM) zal hierover erg interessante informatie verstrekken in 2023.

Tot slot vermelden we nog dat het KCE reeds enkele jaren geleden (KCE-rapporten 278 en 290) aanbevelingen deed ter verbetering van de voorspellingsmodellen en dat toen reeds werd voorgesteld om hierop een a-posteriori-analyse uit te voeren. De impact van beleidsmaatregelen die genomen werden in het kader van planning, organisatie en financiering van de zorg zal eveneens geanalyseerd moeten worden, net als de migratietendensen onder het zorgpersoneel.

CONCLUSIE

De impact van COVID-19 op het zorgaanbod in de eerste lijn is ontzettend belangrijk om in kaart te brengen omwille van de reeds bestaande kwetsbaarheid die uitgebreid beschreven is in de literatuur. Bovendien is artsenplanning een oefening die gepaard gaat met grote onzekerheid en complexiteit. Zo kunnen we bijvoorbeeld niet weten of de verwachte daling van het artsenaantal zich werkelijk zal voordoen en of de onvervulde behoefte zal toenemen en zo de eerstelijnszorg onder druk zal zetten. Zelfs de organisatie van het werk van huisartsen wordt momenteel opnieuw in vraag gesteld (zie tekst "*Together we make change happen"* of het project "*New Deal* voor de huisarts".)

De belangrijkste boodschap van deze rapid review is waarschijnlijk dat de planning van het zorgaanbod niet langer gefocust mag zijn op elke beroepscategorie apart, maar dat deze tegelijkertijd moet gebeuren voor alle zorgverleners waarbij een onderlinge delegering van taken mogelijk of wenselijk is. Dit zou ons toelaten om een beter globaal beeld te krijgen van de zorg die multidisciplinair wordt verleend. Een gelijkaardige aanbeveling werd (samen met andere methodologische aanbevelingen) reeds een aantal malen geformuleerd in KCE-studies rond de planning van zorgverleners. Daarenboven toont de ervaring in Nederland ook aan dat planningsoefeningen geïntegreerd moeten worden in een bredere strategie waarbij verschillende essentiële aspecten rond werving en behoud van zorgverleners in rekening moeten worden gebracht. Zo zal het cruciaal zijn om te investeren in financiële ondersteuning, mentale gezondheid, het evenwicht tussen werk- en privéleven, digitale infrastructuur, enz. om de aantrekkelijkheid van zorgberoepen te behouden of te verhogen.

SCIENTIFIC SUMMARY

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1. CONTEXT

The COVID-19 pandemic put the health care professionals under pressure all over the world. Stress, burn-out or exhaustion were described as consequences with a risk of a continuous decrease in the health care workforce. A global shortage of physicians, nurses, and other health professionals is already claimed by the World Health Organization (WHO).

In this context, determining the number of physicians needed to ensure the quality of care for the future and fixing the number of medical graduates that can have access to specialization. In Belgium, it was decided in 1996 to limit the medical supply by fixing the number of new physicians approved each year by the National Institute for Health and Disability Insurance (NIHDI). In the first semester of 2022, an agreement between the federal and federated entities defined the quota of physicians for 2028: 744 in the French-speaking part of the country and 1104 in the Dutch-speaking one. In 2019, before the COVID-19 pandemic, quota of physicians for 2025-2026 has been set at 607 in the French-speaking part of the country and 838 in the Dutch-speaking one.

In order to prepare the future scenarios for 2029, the Belgian minister of public health asked the Medical Supply Planning Commission to carry out the following three research activities :

1. Assessment of the impact of the COVID-19 pandemic and of a possible future epidemic on the supply of general practitioners (several issues can be considered such as workload; mental load; administrative burden; change of practices (e.g. teleconsultation...); physicians prematurely leaving the profession…);
2. International comparison about the supply and activity rate of the physicians, with special attention to general practitioners, and the regional distribution;
3. Belgian physicians survey about their expectations for the future practice of the profession, including their own activity level.

Due to the short time frames to carry out these activities, the Medical Supply Planning Commission asked the scientific support of the KCE to the first research question i.e. the assessment of the impact of the COVID-19 pandemic on the supply of general practitioners (GPs). The mission devoted to KCE was to conduct a rapid literature review above their own search for relevant documents.

2. OBJECTIVES AND METHODS

2.1. Objectives

The aim of this study is to **support the Medical Supply Planning Commission's preparation of** future estimates of physician supply by identifying in the literature factors linked to the COVID-19 pandemic that have a potential impact on GPs practice. Because the workforce planning has to take into account not only the supply of health care professionals but also the demand of care, the focus of the literature assessment was enlarged and the research question was formulated as: "**According to the scientific literature, what are the impacts of the COVID-19 pandemic on general practice (in terms of demand and supply), which factors explain these impacts and what is the risk that these impacts persist in the future?"**

2.2. Methods

Due to the urgency of the demand, a rapid literature review was performed by one researcher in PUBMED and EMBASE. The databases were consulted on August 9th, 2022. The search strategy is available in Appendix 1. The search provided 88 hits in PUBMED and 204 in EMBASE. After removal of duplicates, 225 articles were reviewed based on title and abstract and 58 were retained for full texts review. Studies were excluded if they focused on secondary or tertiary care, if the scope did not concern the workforce in the pandemic context, if the study was about mathematical models, if language was other than English, French or Dutch. Reasons for exclusion are reported in Appendix 2.

Additional publications were identified by hand searching from reference lists of eligible studies (n=21) and by recommendations of experts on the field of physicians' supply and planning (n=28). KCE reports on topic of interest and Belgian data sources (Belgian Cancer Registry, IMA-AIM, Sciensano) were also consulted. However, specific INAMI-RIZIV data on the Belgian workforce were not included in this analysis since they are under study for another research activity conducted by the Medical Supply Planning Commission.

Systematic assessment of quality or evaluation of risk of bias was not undertaken for included papers, given the time constraints and the narrative nature of many included sources.

The analysis was performed using the framework proposed by Anderson et al.[1] i.e. categorisation of the factors according to their potential impact on supply or on demand (see Box 1, page 12).

3. RESULTS

Among the 107 publications reviewed on full text, 53 were finally selected for extraction of relevant information. Reasons for exclusion are reported in Appendix 2. Literature reviews, international reports and policy papers were included as well as publications that report results of surveys conducted among general practitioners (GPs). Each publication is described in Appendix 3 within the table referring to the corresponding chapter. Five studies[2-6] and one commentary[7] focused on Belgian data. Their results as well as the analysis of Belgian institutions (such as the Belgian Cancer Registry) are underlined below in order to illustrate what it is currently known on the Belgian situation.

The results of this rapid review are presented as following: brief reminder about the concept of workforce planning, description of the strategies used to manage the COVID-19 pandemic and impacting the primary healthcare, observed and expected impacts of the pandemic on the demand for primary care, and observed and expected impacts of the pandemic on the health care workers (HCWs) supply (and more specifically on GPs). Explaining factors of these impacts are detailed in each corresponding chapter. Finally, we summarized the strategies and recommendations formulated by their authors to support a sufficient workforce in primary care in the future. Illustrative examples from one or another country are included in the text but this does not mean than other countries have not similar situations.

3.1. Concept of the workforce planning

Since the context of this rapid review is to support the Medical Supply Planning Commission to estimate the number of physicians to be trained in 2029, we present below some clarifications about the concepts of workforce planning and workforce strategy.

By '**workforce planning'**, we refer here to the definition presented in Anderson et al.[8]*: the process of analysing, forecasting, and planning workforce supply and demand'*. This definition highlights the two sides to be considered when performing workforce planning: the supply on the one hand and the demand on the other hand. For both, several data are needed as showed in Box 1.[1] Some are related to the population (e.g. demographic characteristics, level of health), and other to the health care systems (number and productivity of the health care workers). In more sophisticated methods, the analysis incorporates also alternative scenarios that reflect the changing forms of care delivery and potential substitution of roles between health-care professionals.

Box 1 – Data needs for workforce planning according to Anderson et al.[1]

Major demand-side factors:

- Population characteristics: age, gender, residence, migration, disability
- Disease epidemiology: disease rates, multimorbidity
- Health and care utilisation: hospital, ambulatory, primary and long-term care utilisation, average consultation length
- Unmet need: inequalities in access to health-care services between different subgroups of the population

Major supply-side factors:

- Entry to the workforce: training numbers, attrition rates, immigration, re-entry rates
- Exit from the workforce: retirement, resignation, emigration, leave (maternity, paternity, study, sabbatical, sickness leave), death (including cause of death)
- Workforce characteristics: age, gender, ethnicity, religion, part-time working, skill mix (including volunteers, unpaid carers, and self-care)
- Workforce shortfalls: vacancy rates, urban and regional imbalances

Alternative scenarios:

- Changing skill mix: empirical evaluations of the effect of substitution of roles between health-care professionals
- Novel models of care: empirical evaluations of the effect of novel models of care

- Emerging technological advancements: empirical evaluations of the effect of substitution of roles between health-care professionals and technology (i.e., artificial intelligence and robotics)

These data needs are based on assumptions within international workforce planning models reviewed by Ono and colleagues (2013).

Beside workforce planning, another and distinct concept is the '**workforce strategy'**, defined as *"the sum of efforts by relevant stakeholders to acquire, retain, develop, motivate, and deploy staff and should be informed by the various elements of workforce planning".*[8] This encompasses the entirety of the workforce (rather than professional groups in isolation), starting with health care workers (HCWs) training until retirement.

These two concepts highlight the diversity of factors playing a role in the workforce planning and the difficulties to estimate the appropriate number of HCWs for the future. We come back on this topic in the conclusions of this document.

3.2. Healthcare system strategies used to manage the COVID-19 pandemic and impacting general practices

The increasing demand of care associated with the SARS-CoV-2 infections rapidly pushed a majority of countries to maximise the efficiency of available resources and adapt their health care system. This led to several rapid and important changes in the daily practice of health care workers, including GPs. The impact of the pandemic on the health care workforce was thus also linked to the strategies developed to manage the crisis. In this context, we remind here the most common strategic enablers used for managing the pandemic impacting the primary healthcare as described in the literature. (Table 1 in Appendix 3 depicts the 19 publications analysing this topic (one rapid review[9], one analysis of international data[10], two international surveys[11, 12], one international comparison[13], two analyses of literature and national data (one from the US[14] and one from Canada[15]), two policy papers from the UK[1, 8], two commentaries from the same first author, one focusing on Europe[16] and one in the UK[17], four surveys (in Belgium[6], in the Netherlands[18], in Italy[19], in the UK[20] and finally 4 commentaries from 4 different countries (Spain[21], Italy[22], Australia[23] and Belgium[7]).

This chapter is divided into 4 subchapters as following: Protecting population and health care workers against the SARS-CoV-2 infection (hygienic measures, triage…); Enhancing workforce capacity; Integrating telehealth; Prioritising vulnerable population (e.g. elderly, persons with chronic disease, homeless…).

3.2.1. Protecting population and health care workers against the SARS-CoV-2 infection

During the first waves of the pandemic, many interventions were implemented more or less rapidly in order to protect both the population and the health care workers against the SARS-CoV-2. Hygienic advices, masks use, social distancing, lockdown, screening, triage and care pathways for non-COVID- and COVID-related problems were the first of them. Several months later, arrived the vaccination campaigns and the safe tickets organisation.[16, 23] Guidelines, training and specific information supports for HCWs are also mentioned by several authors.[10, 13, 15]

The review of Matenge et al. mentioned nine studies from Canada, United States, New Zealand, South Africa and also Belgium that reported measures adopted by primary care providers (other than telehealth) **to limit direct patient care and decrease the risk of infection**. This included cancelling or deferring appointments, suspending intake of new patients, advising patients against in-person care when possible and avoiding in-person group activities including social support programs.[9] In-person consultations (onsite or home visits) were reserved for acute and urgent presentations and management of at-risk patients.[9]

In Belgium, as in other countries, GPs took several measures within the practices to make them more 'infection-proof', such as removing unnecessary materials in waiting or consultation rooms, placing plexiglas at the doctor's desk, limiting the number of patients in the waiting room or asking patients to await their turn in their car.[6] They also used personal protective equipment (PPE) and maintained appropriate hygiene and environmental cleaning.[9, 19]

In some countries, beside the governmental measures, some GPs associations set their own rules regarding daily job organization[22, 23] or proposed to the authorities some organization plans encompassing protection aspects[7]. In Belgium, in February 2020, GPs associations (Circles of general practitioners and Medical unions) sent to the Ministers of health some propositions to manage the pandemic.[7]

All these measures had an impact on the primary care services but also on patient's health and needs as described in the following chapters.

3.2.2. Enhancing the workforce capacity

Since the pandemic first wave, an important challenge was to ensure sufficient workforce to manage the huge number of patients with acute COVID-19. This was made more difficult by the fact that a lot of countries already had a **preexisting staff shortage, particularly for certain types of providers (such as PCP)**.[13-15, 20] This shortage was particularly highlighted in rural regions, for example in Canada[15], and in some settings as long-term care facilities[15].

In an international comparison of the availability of doctors and nurses by country before the pandemic, the OECD[13] mentioned that the COVID-19 outbreak did not reach the same peak in cases and mortality, in the spring of 2020, comparing countries which have fewer doctors and nurses per population (such as in Central and Eastern Europe, Poland, Latvia and Romania), with countries such as Norway, Switzerland and Germany who had a relatively higher number of doctors and nurses per capita prior to the start of the pandemic. According to the OECD, the higher number of doctors and nurses per capita provided *"a greater potential to respond to the steep rise in demand for care, assuming that the activities of some of these health professionals could be reallocated to deal with the crisis (for instance via additional training)"*.[13]

Some settings including acute and hospital-level care were particularly concerned by the huge amount of patients to be managed.[9] However, public health interventions as triage, tracing, vaccination etc., also required health care professionals.

Several strategies were used by the health care system to respond to the need of HCWs in acute and public health settings:

- **Increasing work hours and suspending holidays**.[9, 13-15] In the United Kingdom for example, 60% of hospital doctors in England and Wales reported having worked additional hours between March and August 2020 as part of the response to COVID-19.[13] According to Matenge et al., this was also the case in Belgium.[9] In Canada, under the state of emergency, managers were even given the authority to suspend breaks and holidays for health care staff.[15]
- **Transfer** (also called **redeployment**) of health care workers to acute care facilities in hospitals in the regions most affected by the pandemic, specifically to support intensive care units (ICUs), emergency departments or the provision of telehealth services in primary health care (PHC).[8, 10, 13-15]
- Asking **volunteers** and mobilising **additional staff**.[1, 8, 9, 13, 14] These included students (nearing the end of their studies in medical, nursing and other health education programmes), retired or semi-retired HCWs, private sector professionals, military or naval forces, foreign staff, etc.[1, 8, 10, 13, 15] Some countries, as France, already had some "reserve list" ("Réserve Sanitaire") before the crisis, while others, as Belgium, Ireland and Iceland quickly set up new "reserve lists" to deal with the outbreak and reallocate staff across regions.[13] In Canada, the government has set up a web portal entitled "Je contribue !" (I Contribute!) to facilitate the recruitment of people who wished to offer their services to the health care system (HCS), especially in long-term care centres.[15] Different roles were attributed to this additional staff as answering concerns and questions of the population using phone hotlines and support service delivery to patients. Some sessions of short training were offered by some countries (see the second last bullet below).
- **Task-shifting** and innovations in the roles and responsibilities of different HCWs.[1, 10, 13, 24] The role of community pharmacists, for instance, was broadened in many countries at least temporarily. They were able to take on some of the tasks from doctors, to renew and dispense the prescription for patients with certain chronic conditions. In Canada, Ireland, Portugal and the United States, for example, pharmacists have been allowed to extend prescriptions beyond what they were previously allowed to do and to prescribe certain medications. In the United States, community pharmacists have for example been authorised by the Food and Drug Administration to order and administer COVID-19 tests.[11, 13] In Belgium, in March 2022, a new Royal Decree

was published, allowing pharmacists to vaccinate against COVID-19 in pharmacies. Currently, this only applies to COVID-19 vaccines. Some countries have also enhanced the role of community health workers. For example, the United Kingdom proposed training community health workers to manage long-term conditions and review medicines use for vulnerable people.[13]

- Adaptation of primary health care services by establishing **team practices** and a **strong link with community services**.[11] In several European countries, **multidisciplinary primary health care teams** or solid interprofessional collaboration were promoted to manage testing, remote triage, treatment of mild and moderate COVID-19 cases, surveillance, data collection, reporting and monitoring, prevention messaging and vaccine delivery but also maintain essential services for non-COVID-19 patients.[10, 13, 16, 25]
    - One innovative solution was to establish **COVID-19 community** care facilities, as implemented for example in France, Luxembourg, Belgium and the United Kingdom.[13,16] The overarching objective was to improve **co-ordination between hospitals and primary care practices** to maintain adequate health services.[13] In France, from March 2020, community care facilities dedicated to COVID-19 patients were established by multidisciplinary practices (such as Centres de Santé). The Regional Health Agencies and primary health care professionals agreed to test, in a gymnasium or festival hall in the community, people with mild COVID-19 symptoms but living with a chronic condition as well as health care professionals with symptoms.[11, 26] In Belgium, since March 2020, several triage centers appeared at the doors of hospitals where many GPs took it in turn to provide the first physical consultation and testing of patients remotely identified by their GP as potentially infected (see Box 2 in Chapter 3.3.1.3.).[7]
    - Before the pandemic, many European countries were already using **home-based programmes** to provide post-discharge care or nursing care at home. This was reinforced during the COVID-19 pandemic. For example, in Germany, mobile primary health care teams equipped with testing and monitoring material visited patients with underlying conditions.[13] In France, the COVISAN experiment allowed mobile primary health care units to identify potentially infectious individuals through home testing and provide to individuals and their family many preventive measures including patient education and support, equipment and accommodation at the hotel if quarantine was necessary. In addition, the French Government mobilized primary health care team to organize in collaboration with secondary care, **hospital-at home for COVID-19 patients** in need of oxygen therapy and drug administration.[11] In Belgium, the possibility for primary care team to manage at home patients with mild COVID-19 requiring oxygen was also foreseen in specific circumstances (saturation of hospital).[27]
- **Support by specific trainings,** protocols and guidances with the objective to prepare the workforce on diagnosing COVID-19, using PPE, using contact tracing systems, providing treatment to patients who tested positive, etc.[10, 13, 15] In some cases, there was a multiplication of protocols and training quickly developed at the local level with quality variations in practices, including risks to the quality of care, as well as to the protection and safety of patients and health care providers.[15] All countries included in a rapid review of 14 national primary care responses to COVID-19 had specific guidance on control measures and minimising spread within primary care services.[17] Professional organizations played also an important role to manage this issue.[7, 18] In Belgium, the « Cercle de médecine générale » for example is quoted by one author as a source of recommendations about triage for the French-speaking GPs (beside Sciensano and the discussion of the *Risk Assessment Group*).[7]
- **Add-on payments for PHC providers**. Many countries proposed financial support for HCWs who were facing high workload and risks due to the pandemic, including for teleconsultation services (see Chapter 3.2.3. below) or home visits or for hygiene and safety measures.[11] *In France, for example, the overtime premium for people working in public hospitals was increased markedly in March and April 2020, and an exceptional lump-sum bonus was also granted to those working in the most affected regions to recognise their effort and commitment. Similar measures were taken in Germany and Belgium.*[13] In some countries, as the US, there were also funds to reimburse eligible health care providers for expenses and lost revenue related to COVID-19.[14]

3.2.3. *Integrating telemedicine*

Before the pandemic, telemedicine was limited in Europe but this changed rapidly in 2020 both in the primary and the secondary care. [8, 10, 11, 13, 15-18, 20, 22, 23, 26] According to the OECD, *in Norway, the share of digital consultations in primary health care rose from 5% before the pandemic to almost 60% during the pandemic. In France similarly, the number of teleconsultations reached close to 1 million per week in April 2020 compared to around 10 000 per week before March.*[11]

The use of remote medicine pursued different objectives: to prevent the spread of COVID-19[9], to facilitate the screening, triage and management of suspected cases of COVID-19[9], to assess and address patient needs[9] including electronic prescribing and medical certificates or laboratory/imaging requests[9] or to ensure continuity of care (e.g. coordination between primary care providers (PCPs) and other health care providers) while protecting providers and patients, especially vulnerable patients.[9, 26] In Austria for example, it became possible for patients to demand sick leave certificates by telephone to their GP without the need to first be examined.[28]

Telemedicine was provided through a variety of ways including telephone (the most used tool for remote consultation) or video consultations, conversation by email or text messaging, use of online patient portals and smart phone apps.[9, 26] Medical home monitoring devices such as Bluetooth-enabled blood pressure monitors, pulse oximeters, and glucose meters were also used either to support chronic disease management[9, 26] or to ensure remote follow-up of patients with COVID-19 at home as in Belgium.[29]

This was allowed through various enablers:

- Procurement of **digital innovations**[10, 12] as chatbots to guide patients with COVID-19 symptoms to appropriate services, apps for tracing contacts, interactive location maps of infected people, national mental health telephone support lines… In France for example, the e-Health application Covidom was developed to enable COVID-19 patients to benefit from home-based tele-monitoring via medical questionnaires.[11]
- Adoption of new **legislation**[11, 12] allowing the use of digital means to communicate with the patients as e-mail, patients portals, apps passing photos back and forth to clinicians, videos… For example, in the UK, data protection practices were being temporarily relaxed to enable primary care providers to easily share read/write access to detailed medical summaries with local pharmacists and urgent care providers.[10] In Belgium, in March 2020, the Order of physicians had specified about the consultations without physical contact "than a remote approach is only acceptable under certain conditions: the physician a) knows the patient and his or her history, b) has access to medical information concerning him (medical file) and c) is able to ensure continuity of care".[7] From August 2022, a new framework was defined in Belgium, replacing the temporary system defined around March 2020.[b]
- Development of **guidelines and trainings**.[11, 12] In Canada for example, physician bodies established webinars and toolkits to facilitate uptake of telemedicine or virtual care when possible.[11]
- Proposition of new **fundings** for digital technology or code to fee for remote care.[9, 11, 12, 14, 28] In the UK, the government purchased 40 000 laptops for PHC providers, in Germany new funding was offered for rapid upgrades in health information system hardware and software and in Italy increased funding was provided for diagnostic equipment.[10] In some countries, support payments or codes to fee for remote care were developed to enable PHC providers to deliver digital services such as medical advice in Belgium, Denmark, and Switzerland; remote triage in Ireland; and any digital arrangements necessary (via telephone or email) in the Czech Republic and France.[10] In Canada, new billing codes for primary health care physicians were introduced by provinces and territories to compensate for remote consultations, and physician bodies establish webinars and toolkits to facilitate uptake of telemedicine or virtual care when possible.[11] According to the rapid review of Matenge et al., in Belgium, as in France, the Netherlands and the US, temporary easing of reimbursement requirements for HC providers accelerated the adoption and expansion of telemedicine.[9] This is confirmed by other authors.[11] Pratically, in

[b] Analyses (who.int): https://eurohealthobservatory.who.int/monitors/health-systems-monitor/analyses/hspm/belgium-2020/a-new-framework-for-teleconsultations-analysis#

Belgium, the INAMI-RIZIV had for example opened in March 2020 two new nomenclature codes to remunerate telephone consultations, honored in third-paying up to 20 euros.[7]

3.2.4. Prioritising vulnerable population

According to the review of Matenge et al., some primary care practices, included Belgian practices, followed a proactive approach to identify and manage high-risk individuals as elderly, patients with chronic diseases, low socioeconomic status, homeless… The proactive approach includes risk stratification and active follow-up of vulnerable patients and is based on a holistic, integrated, and community-based approach to the provision of routine care.[9]

The definition of "vulnerable" or "at-risk" persons deserving a proactive approach varies across the publications (and countries). Kumpunen et al. mentioned several examples such as: anyone using long-term services (Finland); older persons living at home (Estonia); palliative patients (Croatia); older patients with chronic diseases (Turkey, Albania).[10]

Traditional and innovative strategies were used to provide services to the most vulnerable persons such as home delivery of medications and food[9, 10]; abolishment of any approvals required for repeat prescriptions[10]; direct distribution of masks or personal hygiene kits[10]; free flu vaccines[10]; provision of addiction and harm reduction services[9]; mobile health teams (with additional payments to support them)[10]; increased fee reimbursement for prioritising vulnerable patients (as in Belgium)[10]; no patient co-payments for COVID-19 related treatment, vaccination and investigation[10] (as in Belgium); mobilisation of community network (e.g. volunteers, private donations, red cross…).[10, 15]

Home-based programmes were also expanded to maintain access to care **for non-COVID-19 patients** and support patients with chronic illness.[13, 26] In England, primary care networks (PCN) were established in 2020, centered around general practice registered patient lists, but working in partnership with community, mental health, social care, hospital, dental, pharmacy, and optometry care to provide holistic, integrated, and personalized patient care close to home. There are 1250 PCNs across England serving communities of roughly 30 000 to 50 000 patients.[17] According to a narrative review, in the US, some clinicians implemented a Safe at Home program, combining regular telemedicine consultations, non-invasive monitoring devices via a smartphone and a dedicated clinical staff member as a care manager (e.g. a medical assistant or nurse to manage a panel of patients), to remotely support patients with chronic illness to manage their care at home.[26]

In Belgium, among 132 GPs surveyed, many proactively tried to anticipate certain problems in order to help vulnerable people, and to coordinate actions where necessary.[6] Several GPs proactively called their chronic patients if they were unable to do home visits or see them in their office.[6] For example, one practice made a list of vulnerable people and people at risk (elderly, but also vulnerable persons who still need to go to work). The workers were asked whether preventive measures (at work) were sufficient, and were referred to the occupational physician if needed.[6] Vulnerable people who cannot move to vaccination centres due to prolonged immobility (e.g. bedridden patients or those with psychiatric disorders) could also be vaccinated at home by their own GP or a home nurse.

Coordination with other health care providers and social support services were essential in this proactive approach.[8, 9] For example in France (in Rennes Nord/Ouest), multi-professional primary care practices in deprived areas worked with community leaders to provide information about COVID-19 in several languages.[13] Same initiatives were taken in Belgium with meetings held in deprived urban areas in Brussels (Matongé for example) related to pandemic measures, organised by community/religious leaders.

3.3. Impact on the demand for primary healthcare

The impact of COVID-19 pandemic on the demand of care in general practices was analysed by several authors. We included in this chapter 26 publications on primary care: one rapid review[9], one international comparison of INTernational ConsoRtium of Primary Care Big Data Researchers (INTRePID)[30] and one international comparison of the OECD[13], 7 analyses of medical data (in Belgium[4], in Switzerland[31], in the UK[32, 33], in Spain[34], in Hawaii[35] and in China[36]), two narrative reviews[16, 26], 8 surveys (international[12], in Italy[19], in Germany-Austria[28], in the UK[20], in Canada[37] and three in Belgium[2, 3, 6]), one subjective measurement based on records in Spain[38] and one commentary from Canada[39]. Three publications analysing the healthcare system in general (and not specifically the primary care) were also included in this chapter (one systematic review[40] focusing on specific impacted population, one international report[41] that analysed the backlog consequences and one commentary[42] highlighting the financial impact on practices). More details on studies included in this chapter can be consulted in Appendix 3, Table 2.

Results are reported in two distinct chapters : early and potential future impacts on the demand for primary healthcare.

3.3.1. Early impact on the demand for primary healthcare

Early impacts mentioned in the literature concern the amount of usual activities of GPs, specific needs of patients, introduction of additional tasks and the global overload including administrative burden.

3.3.1.1. Early and temporary decrease of usual activities

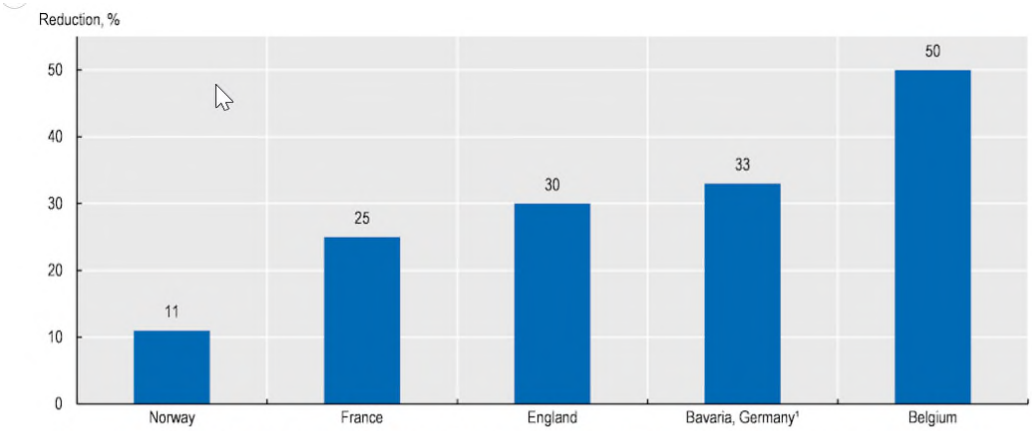
There is a global consensus in the literature to recognize a temporary decrease of usual activities in primary care during the first pandemic waves. **Less face-to-face encounters** are highlighted by many authors at the beginning of the pandemic.[10-12, 18, 21, 31, 36] In an international comparison of 9 countries[c], Tu et al. showed that all INTRePID countries experienced a drop in in-person encounters to primary care providers immediately following the pandemic onset with various degrees of recovery rebounding of in-person consultations or a switch to virtual encounters.[30] In Belgium, IMA-AIM data revealed a lack of face-to-face contacts with general practitioners during the first wave and at the end of the year 2020.[43]

Reasons explaining this decrease of face-to-face encounters are relatively clear despite multifaceted. Early in the pandemic, routine daily patient care had been deemed as non-essential in many countries.[12] Governments and professional bodies have issued messages urging patients to stay away from primary healthcare (and health services in general) unless their needs were critical.[10] In an international survey, Taylor et al. quoted a PCP from Switzerland saying that: "*All treatments except emergencies were not allowed. The police make controls in primary care doctors and physiotherapists for example to make sure that they did not treat "normal" patients*!".[12] This temporary suspension of all "non-essential" care was also promoted in Belgium.[12] Furthermore, some patients were afraid of getting infected with the SARS-CoV-2 at the doctor's office for themselves and their closers and/or they did not want to "*bother their doctor at such difficult time"* with no important need.[3, 9, 11, 20, 28, 31] A misperception of the availability of primary health care services is also evoked by some authors, mentioning the possibility that patient might not have received clear communication for example about what would be considered "urgent".[20, 31]

The OECD mentioned a decrease around 25-30% in France or England and by around 50% in Belgium regarding the primary health care consultations in April 2020 as compared to April 2019 (see Figure 2).[11] According to a survey among 132 Flemish GPs, the number of regular consultations was even decreased by 70%–80% at the beginning of the pandemic.[6]

[c] The INTernational ConsoRtium of Primary Care Big Data Researchers (INTRePID) encompassed Australia, Canada, China, Norway, Singapore, South Korea, Sweden, the UK and the USA.

Figure 2 – Reduction in the volume of primary care consultations during the first wave of COVID-19 according to the OECD[13]



Note: Estimates are based on different tools and are not directly comparable. In Belgium and France, data on consultations compare April 2020 with April 2019; in Germany (Bavaria) March 2020 is compared to March 2019. In Norway and the United Kingdom (England), reductions uniquely during March 2020 are analysed. In Germany (Bavaria), data are calculated based on billing data. In France, Norway and the United Kingdom (England) estimates are based on the number of consultations.

1. Germany data refer to Bavaria only.

Source: Norway (the Norwegian Control and Payment of Health Reimbursement), France (Santé Publique France), the United Kingdom (NHS Digital, 2020[76]) and Germany (Bavaria), information from https://www.aerzteblatt.de).

StatLink https://stat.link/32k6l0

In Belgium, the INAMI-RIZIV published a report on the impact of COVIDs on reimbursed health care, including physicians' consultations and visits. Compared to 2019, the number of physicians' visits and consultations dropped by 15.3% in 2020 (-14.3% for GPs and -16.9% for medical specialists). The largest decrease was observed in April 2020, with a decrease of -61.7% without taking into account remote contacts (-53.1% for GPs and -75.3% for medical specialists) and -31% by taking into account remote contacts. (Source: monitoring_COVID19_update_juin_2021.pdf (fgov.be))

The **decrease of chronic care** in the early phase of the pandemic is described in many countries. [3, 9, 11, 31, 44] According to the OECD, it appeared that people living with chronic conditions **did not seek medical care**.[11] For example in France, a study of a representative sample of the population showed that 51% of people with chronic conditions had forgone care in ambulatory care services or at hospitals and that among people with chronic conditions, 46% did not visit their family doctor or their routine care physician as part of their follow-up.[11]

This early decrease of encounters for chronic care concern a broad kind of diseases including cardiovascular diseases, asthma, diabetes but also cancers and mental health disorders. In England for example, large reductions in primary care consultations were observed for cardiorespiratory conditions including myocardial infarction and asthma, and especially so for diabetic emergencies, depression, and self-harm.[16] In China, the most striking visit reductions were in cardiovascular, respiratory, endocrine, and gastrointestinal diseases. Psychological disorders increased following lockdown, but there was also a dramatic fall in consultations for depression.[36]

Patient reluctance to consult the HC system during the pandemic was also described for **acute problems**. For example, it was shown that, as compared with the previous year, emergency room visits in March 2020 decreased by 29% in the United Kingdom and by 50% for cardiac arrests in California.[11] According to the OECD, this suggests that patients may have been delaying critical care in emergency departments.[11] In Belgium, GPs interviewed in March 2020 felt that acute care was compromised, both by their own shift in focus and by the fact that patients consulted less frequently for non-covid problems.[6]

The decrease of consultations for non-COVID reasons led to a decrease of usual activities. According to an analysis of Intego data in Belgium, peak reductions were noticed during the first wave of the pandemic in radiology orders (-74%), lab tests (-50%), chronic diagnoses (-30%) and acute diagnoses (-28%). A decrease in acute medication prescriptions was also observed while chronic medication prescription and physical therapy referrals remained unchanged.[4]

Some authors agree that the decrease of usual activities in primary health care was **temporary but in many cases the recovery was not optimal.**[4, 30, 31] For example, in Switzerland, which was never in complete lockdown, the shutdown period was associated with a 15%–20% decrease in consultations with GPs and a 30%–35% decrease in HbA1c and blood pressure measurements and no sign (in any group) for over-compensation of the "missed" consultations and measurements in the weeks that followed the shutdown period (in line with rates expected based on the year 2019).[31] In Belgium, in between the first and second COVID-19 wave, acute diagnoses (excluding COVID-19 related diagnoses) returned to pre-pandemic levels. The number of chronic diagnoses and radiology orders slightly increased during the first pandemic year but there were some variations according to the pathology (e.g. incidence remaining low for chronic lung disease but increasing for obesity, chronic cardiovascular conditions, diabetes and cancer).[4]

The potential future impacts of the decrease of face-to-face consultations both for acute and chronic conditions are largely described in the literature and are presented in Chapter 3.3.2.3. Unmet needs.

3.3.1.2. Specific patient needs

Several authors emphasize a major change of the primary health care work during the pandemic,[10, 12, 13, 28, 30, 37] with in some cases an increase of usual work in order to answer to specific needs of the practice population.[19, 30]

Among common changes, we identified the following ones:

- The necessary **hygienic and protection measures** (e.g. masks, hand-sanitizer, ventilation of waiting areas, disinfection of material between patient.) to be taken in the GPs office were dramatically strengthened which was quoted as a source of constraints by GPs, also in Belgium.[3]
- The need for being **up-to-date informed** to deliver high-quality information and care related to **SARS-CoV-2** infection changed the daily process of some GPs. In Canada for example, among 25 rural interviewed GPs, all participants reported feeling a sense of duty to keep up with the rapidly evolving COVID-19 literature, protocols, and guidelines to provide evidence-based patient care or to develop policies for their local hospital, often spending hours and working late at night to catch up. The majority expressed feeling information overload, cognitive fatigue, and exhaustion over time. Differing and conflicting messaging from various sources and lack of relevance to the rural context created confusion, prompting some participants to selectively review a few reliable information sources or to only consume the literature that was practical for their daily use.[37] In Belgium, a survey among 132 GPs from Flanders showed that the work of GPs was different than usual in the very early phase of the pandemic. "*GPs start early with phone calls, adjusting their website, reading the news and relevant papers to stay informed*."[6] They also mentioned their sources of information (Sciensano, Domus Medica and informal chat groups on social media). There was a dedicated Facebook group for medical doctors in which 15 000 doctors participate.[6]
- The management of the **questions of the population** regarding the pandemic required more time for informing, reassuring… The media are a dominant source for health advice and promotion concerning COVID-19. In Belgium, according to a survey among 132 GPs from Flanders, GPs already expressed in March 2020 they play an important role in providing and repeating advice. "*Information by the local or nationwide authorities is often used—GPs post this information on their website or send leaflets by email. GPs said patients will follow their advice more easily than advice in the media, and they can refine or nuance messages"*.[6] These needs persisted during the pandemic. For example in Italy, COVID-related phone calls of patients were permanently more frequent during the second/third wave.[19] Questions over the vaccination were also a source of frequent contacts.[19, 45] Sometimes, communication with patients were experienced as a main strain. In Belgium, GP trainees experienced patients as less tolerant and understanding, especially over the phone.[2]
- More stressed patients had to be managed and **increased mental health needs** are mentioned by several authors.[6, 12, 13, 21, 37] Patients with preexisting mental health disorders were particularly at risk since they could be more substantially influenced by the emotional responses elicited by the COVID-19 epidemic, resulting in relapses or worsening of the disorder.[21] Increased symptoms were reported in people with mental health conditions, including schizophrenia, eating disorders, and attention deficit hyperactivity disorder (ADHD).[13] Furthermore, as presented in Chapter 3.3.2.2, there were disruptions to the mental care services all over the world in 2020 worsening the situation. In the general population, adverse impacts of the COVID-19 pandemic

were also observed. For example, population surveys from Belgium, the Czech Republic, Denmark, France and the United Kingdom showed increased levels of overall anxiety in the weeks since the start of the major outbreak and confinement measures. Effects have been particularly pronounced among people with lower socio-economic status, young people, frontline workers, especially health and care workers, and for people with existing mental health conditions.[13] The social distancing but also health fears and disruption to daily habits (such as physical exercise) were sources of decrease in well-being and mental health.[13, 21] Illness and/or loss of friends or family members due to COVID-19 were additional sources of strain faced by some people[13] while unemployment or difficulty finding childcare were quoted as sources of anxiety[37]. In Canada, rural GPs expressed empathy for the increased mental health challenges and struggles of patients during the pandemic and some clinics extended their appointment duration to accommodate mental health discussions. However, some participants disclosed that having to deal with so many mental health appointments contributed to GPs second-hand anxiety, compassion fatigue, and/or exhaustion.[37] In Belgium also, many GPs worried about the psychosocial consequences of the outbreak, and more specifically about the lockdown measures to control it. Loneliness, depression and intrafamilial violence were reported more frequently. Problems were also detected in persons who previously had good mental health but who were unable to cope with the new situation.[6] This situation led some countries including Belgium to set up dedicated COVID-19 psychological support lines.[13] According to the health status report 2021 of Sciensano, anxiety and depression disorders were particularly high in the population between April 2020 and March 2021, mostly among youngster (18-29 years old).[46]

- **Integrated care:** the diversified and increasing needs of the population have also required for more strong collaboration between HCWs. Sometimes the collaboration was really positive.[16, 37] In Canada for example, an increased sense of camaraderie among rural GPs was quoted by GPs.[37] In Belgium, collaboration in primary care with psychologists, psychiatrists, was described by Flemish GPs as more intense than usual at the early phase of the pandemic.[6] Regarding other specialists, some of them were less busy (since they had to cancel all their appointments) and were more helpful and approachable.[6] According to another qualitative study conducted in Belgium, collaboration and concertation with medical specialists were more difficult for non-acute matters at the beginning of the pandemic, also because not all referral centers communicated clearly about changes in schedule and ways of working. There was no reported problem for acute care.[3]
- **Proactive care for vulnerable patients:** as mentioned in Chapter 3.2.4., vulnerable patients needed yet more attention than before the COVID-19 pandemic and in some countries GPs actively contacted some patients to ensure their care. This had an impact on the workload of the PHC practice. In the UK, a cross-sectional database study examining 3 851 304 consultations between 17 February and 10 May 2020 for patients aged ≥ 65 years showed that telephone and electronic/video consultations more than doubled, alongside a 62.6% fall in home visits and a 64.6% fall in face-to-face consultations but people in the categories of highest frailty and polypharmacy saw the biggest relative increase in face-to-face and teleconsultations (e.g. for face-to-face consultations, the incidence rate ratio increased by >9 times for people taking ≥10 medications, compared with people with no medication.[32] Nevertheless, since length of consultation is not captured in these data, fewer overall numbers of consultations do not necessarily translate in less work.[32]

3.3.1.3. Additional tasks

The involvement of GPs to participate in the common effort for dealing with the pandemic and the subsequent additional needs of the population generated additional tasks beside their usual tasks.

- In several countries, PHC providers were involved in **specific tasks for the public health** during the COVID-19 pandemic while also maintaining delivery of essential (non-COVID) health services and coordinating patient's follow-up after hospital discharges.[10, 12, 13, 19] These tasks encompassed managing the testing, remote triage, treatment of mild and moderate COVID-19 cases, surveillance, data collection, reporting and monitoring, prevention messaging and vaccine delivery.[10, 12, 13] These tasks overran usual scopes of practice and increased the workload of some GPs. For example, the participation to public health tasks implied a coordination between (multidisciplinary) primary care teams and public health experts.[10] In Bosnia and Herzegovina, Covid-19 clinics (offices) and call centres were formed with family medicine staff (20% of all

family physicians and nurses).[12] In Belgium, as shown in Box 2 below, organization of triage centres or corona centres also involved many GPs.[6]

- In some cases, HCWs had to endorse the **roles of other PCPs**. An international survey showed some places where the PCP experienced an increase of daily activities because they assumed job responsibilities of other (types of) primary care clinicians, including those in quarantine or those who had switched departments to handle COVID-19 specific patients, as duties of an emergency physician/internal medicine etc...[12, 28, 37] Some GPs from Canada evoked a "double duty" (cover two services concurrently).[37]
- In Germany and Austria, GPs had also to **treat patients that might normally have been admitted to hospital or referred to a specialist.**[28]
- In some countries, such as Canada, GPs had also t**o work in ICU** due to the chronic shortage of human resources.[37]

Box 2 – Belgian organisation of COVID-19 triage

On 16th March 2020, an emergency plan for general practice was launched by the Belgian government. In this plan, telephone triage was defined as the primary means of COVID-19 triage with the establishment of physical triage centres accessible after telephone triage. Three objectives were aimed: (1) to create a safe environment for GPs when examining patients with suspected COVID-19; (2) to ascertain an optimal use of the scarce personal protection equipment (PPE) resources and (3) to avoid congestion at emergency departments. The emergency plan led to a quick implementation of 'corona centres', largely initiated by local GPs' teams and often organised within the structure of existing out-of-hours General Practice Cooperatives. The centres were staffed 7/7 by a rotation of mainly GPs from the neighborhood.[6]

3.3.1.4. Global impact of the early period of the pandemic on the GPs workload: sometimes similar, most often increased

Regarding the global workload in primary care setting during the pandemic (at least until the end of 2021), a **variety of situations** was described in the world. Even in the areas where an important decrease of the face-to-face encounters was observed, an increase in global daily activities was sometimes mentioned.[12, 20, 28] This increase of global activities is not synonymous of increase in patients encounters. Large reductions in the use of outpatient services have been reported in some countries, including Belgium, France, Germany (Bavaria), Norway and the United Kingdom (England) though the number of teleconsultations has substantially increased.[13] The increase of workload is linked to other elements than the numbers of patients managed in primary care setting. In Belgium, a survey among 21 GPs in Flanders showed that the initial reorganisation of the primary healthcare with hygienic measures, telephonic consultation and collaboration with triage posts absorbed most time and energy and made the GPs very busy.[3]

Furthermore, within the same context, there is a variety of **individual situations**. In Italy, one study showed that the workload increase was negatively correlated with the GPs' age and was tendentially higher among female GPs.[19] The perception of the workload by the GPs themselves can also largely vary between individuals. In Belgium for example, Verhoeven et al. highlighted this situation very well: *"Some GPs perceived the workload as higher because of the phone calls and the need to stay informed, and others perceive it as lower because of the drop in physical consultations".*[6]

The most important sources of increased workload quoted in the selected publications are the use of virtual care and the administrative workload.

- In countries that supported **virtual care** during the pandemic period, the decline in face-to-face encounters (see Chapter 3.3.1.1) appeared to be partially or completely mitigated by an increase in virtual visit rate including the time spent on telephone consultations.[28, 30] For example, among the INTRePID countries, those with the largest decreases in consultation volume during the pandemic (China, Singapore and South Korea) were those who did not shift to virtual care.[30] In the opposite, Canada and the Netherlands are quoted as examples where the overall encounters volume with primary health care providers was relatively stable across the pandemic thanks to a large increase in virtual care.[11, 30] In Canada, a survey among 25 rural GPs showed that, with the transition to virtual care, physicians were taking on more patients per day.[37] Furthermore, some GPs considered remote consultations as risk of misdiagnosis because they were less able to assess subtle symptoms.[2, 6, 20] This put them to prescribe more investigations.[37] They also saw

some patients twice, firstly virtually and then by in-person. In Spain however, one study showed that healthcare providers using more telematic consultations during COVID-19 reported significantly lower levels of perceived workload.[38] In Belgium, according to the analysis of IMA-AIM data, during 2020, approximately 11 million teleconsultations were carried out, mainly by general practitioners (85%) and specialists (12.5%). In primary healthcare, there was a particularly high use of teleconsultations during the first wave of the pandemic (40-50% of all contacts with GPs). At the end of 2020, the part of teleconsultation felt to 7-8%. Overall, nearly 40% of the patient population had at least one teleconsultation for continuity of care and 13.5% for triage, during this first year of the pandemic, with some patients having both. Over the whole year 2020, an higher overall volume of contacts (all kinds) was observed compared with 2019: >52 million in 2020 vs ~50 million in 2019, i.e. an increase of 5.3%).[43] In terms of workload moreover, remote care and the inherent use of technical devices implied a change in the work process in primary health care. In Belgium, according to a survey among 132 GPs in Flanders, the switch towards telephone consultations was major, for COVID-related as well as for non-COVID related problems, but this made the job more difficult (loss of non-verbal communication, limited ability of some patients to articulate their needs, intercultural communication and associated language problems), certainly if they are not their own, known patients. Video consultations were considered as easier to use.[6]

- **An increase of administrative workload** is quoted by some authors presenting results of GPs surveys.[2, 6, 37] For example, in Canada, a survey among 25 rural GPs showed that the administrative workload increased, with more communications, emails, paperwork, as well as investigation results to be reviewed.[37] In Belgium, GPs interviewed in Flanders in March 2020 mentioned there was more administrative workload than usual, much of their time spending in writing sick leave certificates, digital prescriptions, writing mails and so on.[6] In another Belgian survey in 2020, most of the GP trainees (75%, n = 162) and trainers (71%, n = 221) experienced more stress at work and an overload of administrative work. They mentioned long phone calls from patients and overwhelming administration work, including writing **sick-leave certificates** and testing on COVID-19 for non-medical purposes.[2] The issue of sick leave certificate for employees was highlighted because during the pandemic, these certificates were to be provided without physical examination of the patient, which was highly unusual and made GPs *feeling like an 'ink pad'*.[6]

If global overload… unclear trends with time progression

The duration of the global overload in general practice varied according to the publications. In Austria, in April 2020, almost half the working hours of the surveyed GPs were directly or indirectly linked to the pandemic versus one third in routine care (e.g. screening or treating chronically ill patients). In July 2020, both proportions were changed in 11% of working hours directly or indirectly linked to the pandemic and 72% spent on routine care. At the beginning, there were a lot of telephone consultations (46%) and less practice consultations (23%). However, the situation evolved and, in July 2020, the amount of time spent on telephone consultations dropped to 10% vs 68% in practice consultations. The time spent on organization and coordination decreased from 21% to 12% at the end of the survey.[28] Despite this, the same survey showed that the number of GPs rating the overall burden of their work as high or very high varied between 23 and 36% before the end of May, but afterwards increased to 56%.[28] The authors suggest that "*maybe GPs worked hard to ensure the earliest possible resumption of care for their chronically ill patients*".[28] In Belgium, according to an analysis of Flemish electronic medical records (EMRs) during the first year of the COVID-19 pandemic, the reference category (aged 18–35, female, Belgian, living outside center cities, high socio-economic status) registered an increase in care provision of 9.1% (95% CI 8.5%-9.6%), an increase in acute diagnoses of 5.1% (95% CI 4.2%-6.0%) and a decrease in the selected chronic diagnoses of 12.8% (95% CI 7.0%-18.4%). These overall changes in care during the first year of the COVID-19 pandemic varied largely across specific periods.[4] Overall, respondents to another Belgian survey regularly indicated that the workload during the first wave of the pandemic (March-May 2020) was acceptable, whereas the workload during the beginning of the second wave (September 2020) was intolerable and increasing.[2] For the authors, the increased workload and work stress were mainly caused by the changing guidelines and health care organization requirements, the administrative overload and communication with patients.[2]
However, it is important to underscore here that studies mentioning this topic focused on the first year of the pandemic at maximum. The potential impact at longer term of the pandemic on the GPs workload is presented in Chapter 3.3.2.

3.3.2. Potential impact on the future demand of care in general practice

According to the Anderson framework[1], factors on the demand side to be taken into account for workforce planning include projections of evolving health needs (depending on population characteristics, disease epidemiology and healthcare utilisation), estimates of unmet needs, patients' self-care capabilities and public expectations. We identified potential impacts of the COVID-19 pandemic on these factors and report the results below.

Since several years, a future rising of health care demand was already foreseen, irrespective of the COVID-19. This increase is not only related to the fact that the population is ageing but also because people are living longer with multiple long-term conditions. For example, the population in the UK with complex multimorbidity (i.e., more than four diseases or conditions) is set to double by 2035.[1]

However, the COVID-19 pandemic risks to worsen the situation and increase future healthcare needs of the population.[11, 31] No publication was found focusing specifically on this topic but many authors quoted in Chapter 3.3.1 mention their concerns regarding the future. We describe below several impacts of the crisis: increase of people with disease and disability related to acute COVID-19 and long COVID, post-pandemic mental health disorders, unmet needs and poor patients self-management.

3.3.2.1. COVID and Long COVID

According to the policy paper of the WHO Regional Office for Europe, it is still uncertain how much capacity will be needed in the future to care for **COVID-19 patients**.[41] As care for people with COVID-19 becomes integrated into routine care, and with guidelines indicating most cases are mild and can be appropriately managed by general practice, adding this care to the primary care workload may further worsen the workload (and notably the ability of practices to focus on non-COVID patients and in particular patients with chronic disease).[26, 41]

The same concern is formulated regarding the increase of the number of **long-COVID patients**.[41] Diagnosis and treatment of long COVID may be an ongoing challenge for health care workers and a burden for primary healthcare.[14, 16]

3.3.2.2. Post pandemic mental health disorders

Some authors emphasise that negative impacts of the COVID-19 pandemic on population well-being and mental health (as highlighted in Chapter 3.3.1.2) will probably **persist over time**.[6, 13, 15, 33] In Belgium, Verhoeven et al. suspected that the outbreak—as well as measures adopted to control it—will have a profound influence on psychological and socioeconomic well-being; consequences, already noticeable in vulnerable people, will continue to become sharp in the medium and long terms.[6] Continuing burden of mental health problems is also evoked for those who have lost jobs or missed out on education.[16] All these issues concern patients with pre-existing mental health disorders but also the general population. Furthermore, the **decrease of supply in mental health services** did not allow to early manage worrying situations and worsened the situation.[13, 24, 44] According to OECD, at the beginning of the pandemic, many countries saw peaks in discharges from mental health care due both to the recommissioning of inpatient beds or staff for COVID-19 and the risk of COVID-19 transmission.[13] "*In Madrid (Spain) for example, in March 2020, the number of inpatient psychiatric beds was reduced by 60%, outpatient units were closed, and the number of patients attending emergency psychiatric services fell by 75%"*.[13] Multiple reports from OECD countries also suggest significant reductions in the number of referrals to mental health services, mental health services contacts, and active community caseloads during the peak of the spring COVID-19 outbreak.[13] In the UK, Williams et al. quoted a survey of the Royal College of Psychiatrists which found that non-urgent clinical activity has decreased, with 45% of respondents reporting a decrease in routine appointments. Combined with the high levels of reported anxiety (49.6% of people in the UK reported high anxiety in late March, 2020), the author emphasized that this unmet need could result in a surge in demand in the coming months.[33]

One quotation from OECD illustrates clearly the situation and inter-relation of different concerned populations and different issues. "*The COVID-19 crisis has had a marked impact on the mental health of both people with pre-existing mental health conditions and the general population. Countries have taken decisive action to preserve some access to mental health support. Many countries have also been providing well-being support to the general population, for example through online advice or phone hotlines. Nonetheless, the combination of reduced capacity in mental health services and increased demand caused by the worsening mental health status of the general population, risks putting additional strain on mental health services which were already over-stretched in many countries*."[13]

3.3.2.3. Unmet needs due to early disruptions of care

During the early phase of the pandemic, **disruptions to acute non-covid and chronic disease management** were clearly noticed[6, 26, 41, 47] (see Chapter 3.3.1.1) along with the lack of attention given to **preventive care** (such as screening activities)[6, 9, 11, 26, 39] and **health promotion**, decrease in **mental health care**, interruptions to the **supply of medications**[4, 26, 41], etc. All these disruptions led to **delays in screening, diagnosis and treatment of other diseases than SARS-CoV-2 infections**.[8, 10, 13, 20, 26, 41] A lot of examples of diagnosis or treatment backlogs are available in the literature and many authors emphasise that these disruptions can possibly lead to poor health status (with urgent health problems remaining undiagnosed and exacerbated chronic illnesses), prolonged recovery and decreased chances of survival for many people in the future. [8, 9, 13, 16, 20, 26, 33, 39, 41] Even at the beginning of the pandemic, delays in consultations led to more advanced symptoms.[20] For example in the UK, one GP interviewed in September 2020 said that "*he had a patient who's had a neck lump for nearly 5 months and didn't tell at all*".[20]

Moreover, **vulnerable patients** (e.g. elderly, patients with chronic care, low socio-economic status (SES)) are particularly concerned by this issue.[3, 4, 10, 11, 17, 26, 33] For **patients with chronic disease**, the lack of follow-up led to additional risks of poorer health outcomes related to COVID-19 as a double punishment.[11, 17] A similar statement can be made for **patients with low SES** who combined risk factors (highly dense community, highly-risk job…). Since the COVID-19 pandemic has also economically and socially damaged the lives of many people, health inequalities risk to increase.[11] In Belgium, it is observed that people with a **lower socio-economic status (SES)** were particularly concerned by the decrease in care provision and chronic diseases incidence.[4]

Furthermore, these disruptions were not followed by a complete "**recovery**".[34, 41] Some countries managed to restore pre-pandemic levels of service delivery (as the Netherlands, Sweden or Finland) but in other countries, waiting lists (number of people waiting for care) and waiting times (how long they must wait) continued to increase (as Ireland, England or Italy).[41] The size of the additional cumulated number of patients on the waiting lists due to COVID-19 (referred to as the care **backlog**) is hard to estimate in many countries but when possible, a large variation was observed (from 6% in Denmark and 8% in Czechia, to 32% in Poland and 36% in Hungary).[41] In Belgium, according to the Intego data, most chronic diagnosis incidence rates returned to pre-pandemic levels during the months December-February 2021 (exceptions were chronic cardiovascular conditions and obesity for which a rise of 12% and 80% was observed and chronic lung conditions for which the incidence remained low throughout the whole year).[4] However, according to IMA-AIM data that compared 2019 and 2020, the fall in the number of new consumers of antihypertensive medications during the first wave of the pandemic in 2020 (decrease of 6%) was followed by a return to the 2019-level since May 2020 but without a recovery.[48] A similar observation was done for the new consumers of diabetes therapy with a decrease of 7.4% without a recovery despite a later increase.[48] For cancers, the Belgian Cancer Registry published in April 2022 a short report on this topic (see Box 3).

Box 3 – Belgian Cancer Registry: Short report on cancer diagnoses during the COVID-19 pandemic

Approximately 2700 missing cancer diagnoses in first two years of the COVID-19 pandemic in Belgium

The Belgian Cancer Registry has been closely following the number of cancer diagnoses during the first two years of the COVID-19 pandemic in Belgium, thanks to accelerated reporting from the pathology laboratories. In the first peak of the COVID-19 pandemic in April 2020, a 43% decline in diagnoses of invasive cancers compared to April 2019 was observed. Following this first peak, cancer diagnoses nearly recovered to normal levels for the rest of 2020. The number of diagnoses in 2021 are beginning to reflect pre-pandemic trends, however, there is still a persistent 2% decline in diagnoses over the two-year period compared to 2019, equivalent to about 2700 missing cancer diagnoses.

While for younger age groups and certain cancer types, the missing diagnoses appear to have recovered, for older patients and most cancer types, the decline in diagnosis persists. Given that an earlier diagnosis of cancer is the best predictor of a good outcome, the main message continues to be the importance of timely consultation with a physician when (persistent) symptoms are noticed.

Source: Belgian Cancer Registry (https://kankerregister.org/default.aspx?PageId=644)

"How much is needed to reduce the backlog?", and "*how many 'missing patients' with unmet needs there are*?" are thus two paramount questions[41] not really answered in the retrieved literature. **For cancer**, some studies tried to show how much delayed cancer diagnoses and treatments will impact patient's survival rates.[13, 39, 47] In England for example, an increase in cancer deaths by about 16% for colorectal cancer, 9% for breast cancer, 6% for oesophageal cancer, and 5% for lung cancer is expected over the next five years. In France, delayed diagnoses could lead to an excess mortality of 10-15% per month of delay.[13] In Belgium, in December 2021, a report from the INAMI-RIZIV showed a stagnation of recovery, both in terms of surgical, internal and psychiatric services. For example, the recovery times for essential and mixed surgical services are estimated at 2 years and 2.1 years (25 months) respectively. For non-essential surgical services, this delay is 5.7 years (5 years and 8 months). To manage recovery concerns, authors proposed a scenario of working on average 5% above normal capacity, while identifying many sources of uncertainty: impact of future waves, future absences and staff turnover, possible impact of the flu season during winter.[49]

Finally, some authors highlighted that policies to reduce backlogs will be demanding on an already overstretched workforce, increasing pressure on health workers, putting them at increased risk of absenteeism and burnout, starting a vicious spiral.[41] For **primary care setting**, the delay on timely health management (also due to disruption in imaging, specialist care, etc.) is suspected to increase the future workload as GPs supported complex patients with ongoing and worsened symptoms.[10, 20, 26] In Belgium, 132 Flemish GPs surveyed in March 2020 expressed worries about huge workload after the acute phase of the pandemic, and health problems due to suboptimal follow-up.[6]

3.3.2.4. Poor patient self-management and unhealthy behaviors

Unhealthy diets, decreased physical activity, and non-adherence to treatment are reasons evoked by some authors to consider a poorer self-management during the pandemic with potential impact on the future health of the population.[26, 31] This situation is related to patients themselves but also to the health care system because of a decrease in the support provided (as described in Chapter 3.3.2.3. above).

In Belgium, GPs expressed for example worries about diabetes getting out of control, specifically among patients with low SES since they combine risk factors (e.g. more distress from the pandemic and lockdown but also more unhealthy food and less physical exercise).[3] The same survey showed that support of self-management of patients with chronic disease such as diabetes was hampered in some Flemish multidisciplinary practices where nurses and dieticians were put on temporary unemployment.[3]

Moreover, one publication mentioned the pandemic effect on the unpaid carer in the UK, exacerbating the socioeconomic disadvantage they face and potentially decrease their availability, which can interact with the wider health and care workforce.[1, 8] "*Projections of supply and demand by the Personal Social Services Research Unit (now known as the Care Policy and Evaluation*

Centre), under the assumptions that the propensity to provide care and the disability rates in old age remain constant, suggest a widening gap, reaching 2.3 million unpaid carers in England by 2035". This may be a conservative estimate of the carer gap as these projections do not incorporate expected rising rates of complex multimorbidity and associated needs for care and support in old age. Such a large gap will inevitably increase demand pressures on the NHS and social care services, especially for individuals with high-intensity care needs for whom the evidence for substitution between funded services and unpaid care is strongest. Given the strain on public finances caused by the COVID-19 pandemic, it is unlikely that support for unpaid carers, for example, in the form of tax breaks or further income support, will be forthcoming".[1]

3.3.2.5. Global potential impact on demand: rather increase

In the four chapters above we noticed that an increase in demand for primary healthcare is expected by many authors, directly due to the SARS-CoV-2 infection itself (COVID and long-COVID) but also because the pandemic and the strategies used to control it impacted the mental health of the population, the use of the health care service and the self-management habits. More patients with complex diseases in an already overstretching health care system will have probably to be managed in the primary care setting.[14, 20, 45] For reminder, regardless of the pandemic an important increase of patients with complex multimorbidity was already expected in the world because of the ageing population.

However, some authors hypothesized that the disruption in the health care utilization in the early period of the pandemic will have a lower impact than expected because it just counters the current overmedicalization trends.[4, 20, 40, 41] It is evoked that some patients had missed unnecessary care and may recovery while waiting for care.[41] One systematic review reported "*that reductions of HC use often tended to be greater for milder or less severe forms of illness which, combined with existing evidence about too much medicine, suggested that for some people, missing care may not have caused harm"*.[40] For example, some included studies on acute coronary syndrome showed a much greater reduction in admissions for the less severe non-ST-segment elevation myocardial infarction (NSTEMI) events compared with ST-segment elevation myocardial infarctions (STEMIs). Similarly, in France, a study of three psychiatric emergency services in Paris found greater reductions for consultations for anxiety and stress, and smaller reductions for consultations for psychotic disorders, leading to speculate that "some people may have found an elevation in resiliency and new strengths and coping strategies during the crisis". In contrast, other included studies found no change in presentations according to severity, including a national Portuguese study reporting a 48% reduction in emergency department consultations—from an expected 570 000 to an observed 295 000 in March 2020—but no significant change in proportions of different triage categories.[40] Therefore the authors of the systematic review concluded that the hypothesis of a reduction of unnecessary care is not verified and requests sensitive and nuanced analysis, with adjustment for multiple potentially confounding variables. "*For instance, simply showing no adverse outcomes in the short term from missing an episode of care does not prove it was unnecessary"*.[40]

At the opposite end, patients had may be died while waiting care (with less patients on demands in health care). One systematic review on whole HCS (many data on emergency department) found evidence of excess population mortality, in addition to deaths from COVID-19, and related phenomena such as increases in out-of-hospital cardiac arrests during the pandemic.[40] This question will deserve more attention in the future.

3.4. Impact on the GPs supply

Several authors highlight the impact of the pandemic on the GPs as individuals in one hand and as professionals in another hand. In this chapter, we present the analysis of 24 publications: one systematic review[50] and one rapid review on past and current epidemics[44], two international surveys[51, 12], one policy paper for the WHO European region[41], one international comparison[13], two narrative international reports from the World bank[52, 53], one analysis of literature and national data from the US[14], one analysis of Canadian data[15], 12 surveys (in France[54], in the Netherlands[18], in Canada[37], in Ireland[24], in Italy[19], in Spain[55], in Germany-Austria[28], in the UK[56, 45] and 3 in Belgium[2, 5, 6]), one subjective measurement based on records in Spain[38] and one combination of analysis of data from the 2020 Physician Workforce Assessment and physician survey in Hawaii[35]. Some general papers and commentaries were also included in this analysis.[17, 21, 22, 25, 57] More details on all these studies are available in Appendix 3, in two tables: Table 3 for the impact on GPs mental health and Table 4 for the impact on the GPs workforce.

Results are reported in two distinct chapters : early and potential future impacts on the GPs supply.

3.4.1. Early impact on the GPs supply

Early impact on the GPs supply concerns GPs physical and mental health impact, coping strategies and global impact on the GPs workforce.

3.4.1.1. GPs physical and mental health

Personal risks for physicians working at the “frontline” increased during the pandemic including exposure to the virus, quarantine and illness, fatigue due to extended working hours, professional risks due to assignments outside the usual competencies, and risk of death.[19]

General practitioners were particularly exposed to the SARs-CoV-2 at the beginning of the pandemic. According to OECD, during the initial phase of the pandemic*, ”most countries faced an acute shortage of medical masks and other personal protective equipment for health workers, which left many of them vulnerable to infection”.*[13] Such shortages were particularly highlighted in outpatient and long-term care settings.[13]

In the world, many thousands of health-care professionals had COVID-19 suffering in some cases from a severe form of the disease. One systematic review found that GPs reported migraines and headaches, tiredness and exhaustion, sleep disorders and increased eating, drinking, and smoking during the pandemic.[50] An increased absence-rates, directly linked to COVID-19 infection were observed in Europe[41], for example in Ireland.[24] The risk of death was also emphasised.[17, 19, 22] In Italy for example, where the pandemic was so severe, 365 Italian physicians have died; more than one-third of them were general practitioners.[19] Long COVID was also described among GPs.[50] In the UK, one study showed that health care workers were the second most likely to report having long COVID, after social workers, followed closely by teachers and educators.[14]

Beside the direct impact of the COVID-19 on GPs physical health, indirect effects as months of working in a stressful, exhausting situation had also contributed to physical health problems.[14, 50] Fatigue is for example an important stressor quoted by junior doctors in the UK.[56] Indeed, the most frequent impact of the pandemic on the HCWs health quoted in the literature concerns their mental health.[2, 5, 6, 12, 14, 18, 20, 37, 38, 41, 50, 51, 54-56]

Even before the pandemic, mental health concerns (including burnout) were known to be significant problems for many health care workers.[14,45] A survey in family medicine physicians conducted in the US from December 2019 to January 2020 found that loneliness, burnout, and depressive symptoms were reported by greater than 40% of survey respondents.[14] In Canada, a quarter of physicians and residents reported high levels of burnout before the pandemic.[37] In Belgium, in 2011, the report from KCE over the burnout among general practitioners had already highlighted this concern.[58]

There is a consensus on the fact that pandemic affected HCW’s mental health and increased burnout and exhaustion.[5, 14, 37, 41, 45, 50, 55] A Canadian survey among 25 rural GPs listed the common words used by GPs to describe their mental health in mid-2021. This included frustration, anxiety, stress, tired, anger, irritable, hopeless, drowning, defensive, burnout, COVID-fatigue, depression, disappointed, emotional, low mood, and numb.[37]

The PRICOV-19 study emphasised the global level of stress of GPs in 33 countries. Although the results varied by country, the total score showed that 64.5% (2394 out of 3711) of respondents were at risk of distress.[51] In Spain, a survey among 40 PHC physicians showed that after seven months into the COVID-19 pandemic (October 2020) 50% of respondents scored high on all burnout domains vs 10% in January 2019.[55] According to one systematic review[50], among five studies of mixed groups of healthcare workers, **primary care doctors reported higher levels of personal perceived stress, worse burnout scores, worse depression scores, greater reporting of post-traumatic stress symptoms and lower job satisfaction** than other specialty groups. Gender and age differences in the impact of the pandemic on GPs mental health are also identified by this review with women GPs having poorer psychological outcomes than men; higher stress was reported in older groups but more anxiety and depression in younger groups.[50] Another survey confirmed the higher stress or anxiety level among women compared to men[54] but not all.[55] The PRICOV-19 study also found that GPs working in larger practices had significantly lower distress than those working in solo or duo practices.[51]

One survey in UK junior doctors (with 24% in general practice training) showed in the summer 2020 a high level of burnout among the 326 respondents and a negative impact of the COVID-19 pandemic on the work life and training.[56]

In Belgium, such deleterious effect of pandemic on mental health was also described in 4509 HCWs in Flanders[5] and other regions (Power to care study of Sciensano and KUL)[d]. The power to care study, performed at different time intervals (December 2020, March 2021, June 2021, September 2021) showed both physical (muscle pain, headaches, stomach problems) and mental (chronic and acute symptoms of stress) disorders in HCWs in Belgium.

Several sources of stress were identified:

- GPs expressed clear feelings of stress, anxiety, and **fear over the possibility of contracting the virus, not only for themselves but also for others**.[2, 6, 12, 20, 45, 50, 56] The possibility of transmitting SARS-CoV-2 to family and friends was a huge concern expressed by physicians.[14, 19, 21, 37, 38] A quotation from one Spanish GPs is illustrative of the GPs feeling: "*Are we being irresponsible with our families hugging them or kissing them good night*?".[21] In Belgium, many Flemish GPs surveyed by Verhoeven et al. were convinced that they were at high risk of getting infected. "*Most GPs do not experience a psychological burden regarding themselves, but rather worry about transmitting the infection to others.*[6] The risk of spreading the virus to the communities and most vulnerable patients was also clearly mentioned.[14, 37] Furthermore, dropping out and being unable to contribute their part of work, adding burden to their colleagues were mentioned.[6]
- According to an international survey at the beginning of the pandemic, the **absence or insufficient provision of adequate personal protective equipment** in primary care settings increase the feeling of insecurity in GPs.[12] Other authors confirm this observation.[28, 37, 45, 50]
- The fear of being infected and the risk to transmit the SARS-CoV-2 to family and friends led many health professionals to **reduce their contacts**, temporarily lived separately from their family, strictly adhering to infection control and PPE protocols and/or developing a sanitization ritual after coming home from work (i.e., washing clothes and showering before interacting with family).[37, 44] Several participants to a survey in Canada reported choosing to stay separate from their family during self-isolation while awaiting swab results, which was emotionally difficult.[37] A few participants even experienced stigma from family members regarding the risk of transmitting the SARS-CoV-2.[37]
- The **workload and changes in the work process** was an important source of stress.[12, 14, 37, 45] In an international survey, PCPs mentioned that the changes in daily clinical responsibilities, shifts, and limitations to practice created an environment of uncertainty, anxiety and stress for primary care clinicians.[12] In Ireland, COVID-19 redeployment disproportionately impacted negatively (put a strain) on primary care and community services, at least at a short term (data available until November 2020) ultimately reducing capacity to deliver services, having "*challenged the resilience of the primary care workforce as a whole*".[24] According to the PRICOV-

d https://www.sciensano.be/nl/pershoek/na-20-maanden-covid-19-crisis-blijft-chronische-stress-pieken-bij-zorg-en-hulpverleners or https://www.sciensano.be/fr/coin-presse/apres-20-mois-de-crise-covid-le-stress-chronique-continue-de-menacer-les-professionnels-de-laide-et

19 study, 43.6% of respondents reported that they could not count on the support of other practices in their area if staff were out due to COVID-19.[51] As described above in Chapter 3.3.1.4, teleworking and administrative burden put some GPs under pressure. In Belgium for example, a survey among Flemish GPs at the early phase of the pandemic showed that teleworking (by phone and video) caused stress and the fear of missing important diagnoses.[6] In physical consultations, communication was affected because of protective measures as masks, leading to difficulties to show empathy.[6]

- **Treating COVID-19 patients and witnessing their co-workers get sick and sometimes die** also contributed to increased stress among health care workers, at first in the early months of the pandemic.[14] In Canada, according to a survey among 25 rural GPs, it was mentioned that dealing with the medical complications of decompensating COVID-19 patients in a low-resource setting was stressful. Some participants "*resented that public health protocols for COVID-19 patient care undermined the dignity of the patient and restricted visits from family during end-of-life care. The death of a COVID-19 patient was personally difficult for many rural physicians, as individuals in rural communities are usually intimately familiar with each other, and physicians know them as more than just patients".*[37]
- Frustration regarding **the place of primary healthcare in the pandemic management** was clearly mentioned by several authors.[6, 12, 38] The fact that many countries and health care disciplines established essential versus non-essential patient care guidelines ruptured the holistic continuity of care model that primary care prides itself on delivering.[12] Furthermore, because GPs initially received lower PPE supply than hospitals, they felt neglected and not fully considered by health authorities.[2, 19, 44] The over-emphasis on hospitals contradicted the mammoth efforts to achieve integrated care delivery in community and primary care settings.[24] As Taylor mentioned: "*Policymakers often without the input from primary care clinicians, established mandates on essential versus non-essential care, which had the potential to hurt patients and add increased stress and anxiety for clinicians*".[12] In France, one survey highlighted that the pandemic has greatly reduced decision-making latitude in GPs work.[54] Negative public perceptions of general practice was one of the most widely cited causes of stress in UK.[45]
- **Changing/contradicting indications, a sense of unpredictability**, insufficient information, uncertainty and inadequate communication with health authorities/hospitals were also sources of stress.[19, 21, 44, 45, 50, 54] According to the PRICOV-19 study, 53.6% of the respondents indicated that adequate support from the government for the proper functioning of the practice did not exist and only one-third (32.9%) agreed there was enough time to review guidelines or read the relevant scientific literature.[51] The lack of PC-relevant training and guidelines impacting safe work practices; and the lack of clear and consistent information from reliable sources was known as stressful during an epidemic.[19, 44] Earlier in the COVID-19 pandemic, anxiety largely stemmed from the uncertainty surrounding the virus.[37] Furthermore, the evolving epidemiology affects how symptoms are interpreted. In Belgium, because there is a large focus on COVID-19, GPs though they will miss other diagnoses more frequently.[6]
- In some countries, **financial lost** or fear of lost income put the HCWs under pressure, including in primary care.[6, 14, 28, 42, 44, 45, 54] In the US, this led to closure of some small practices. *In a survey of 558 US primary care physicians fielded May 29 through June 1—nearly 3 months into the pandemic— 6% of respondents said their practices were closed, perhaps temporarily, and 35% said they've furloughed staff*.[42] In Belgium, at the beginning of the pandemic, the decrease in face-to-face contacts had also an impact on GPs income as GPs work mainly in a fee-for-service system.[6] In some Belgian primary care teams, *nurses and dietitians were put on temporary unemployment by practice owner due to loss of revenues following the drop in consultations and their services considered 'not essential'*.[3]
- Beyond work, many physicians struggled to **balance family obligations, social isolation, and personal struggles such as loss of loved ones**, going through a divorce, managing personal/family member health issues, and worrying about loved ones in long-term care homes.[37] In Spain, a survey among primary care physicians showed a significant higher subjective mental overload of primary care medical staff during COVID-19, which was higher among physicians with family members admitted for COVID-19.[38] All these concerns increase the feeling of loneliness, frustration and stress of physicians.[12, 19, 38]
- In US, **violence in the workplace** (such as verbal abuse) was mentioned as having increased during the COVID-19 pandemic, contributing to health workforce stress. However it was not specifically evoked for primary healthcare.[14]

3.4.1.2. Coping strategies and positive experiences

Despite the negative direct and indirect effect of the pandemic on the GPs physical and mental health, "positive professional experiences" are described by some authors.[2, 18, 19, 37, 45] In Canada for example, a survey among 25 GPs showed that, despite adverse psychological effects, some participants felt that it was exciting to deal with a new challenge through teamwork; using their skills to help their community was also felt as rewarding. "*This sparked feelings of "rising to the challenge" and "humble gratitude*."[37]

Several measures were taken by GPs to manage the stress linked to the crisis. In Canada for example, rural GPs mentioned how they had learned to develop healthy coping techniques to retain some consistency in life during their limited free time.[37] Several ways were described such as:

- distraction from work by limiting COVID-19-related discussions and consumption of news, gardening, practicing music, watching movies, reading books, and doing outdoor activities;
- activities increasing mindfulness, positivity, and self-confidence such as meditation, journaling, self-reflection, therapeutic letter writing, celebrating "small wins" from one's efforts, and educating oneself about COVID-19;
- strategies to improve self-care, balance relationships, and healthy lifestyle such as by exercising, having a reasonable sleep schedule, connecting with loved ones, learning to incorporate breaks, not doing work outside of business hours, and relying on their partner to identify limits;
- use of social supports in other communities to recharge their mental health[37];
- use of support from colleagues[5, 18, 45, 51] and professional associations[7, 18]

In Belgium, GPs trainees and trainers for example mentioned they experienced support from their direct colleagues and peers in formal and mostly informal discussions. "*An important sense of solidarity amongst GPs from different practices was established during the pandemic".* In order to decrease the workload, a good organization of working shifts and efforts of administrative or nursing employees was promoted. Outside the work setting the respondents found distraction and motivation by planning free time and spending time with their friends and family. Many of them continued or increased sport activities and meditation.[2] Regarding the loss of income, a survey among Flemish GPs showed that some doctors developed a system to be paid per every shift worked, regardless of the tasks performed. This was useful until the health insurance reimburses phone consultations (within certain limits), which was not the case before COVID-19 outbreak.[6] Positive support by professional associations such as the Collège de Médecine Générale (CMG) was also quoted in Belgium by one author.[7] The positive role of the Flemish Institute for the first line (www.vivel.be) was also mentioned.[25]

However, a survey in junior doctors in the UK also showed that the increasing workloads and additional demands in the workplace may hamper them to have the time or the motivation to engage with healthy lifestyle measures, which are usually used as coping mechanisms to help mitigate stress and burnout.[56]

External support for physicians (and nurses and other HCWs) wellbeing was also expanded by many countries to help them dealing with high level of stress, fatigue and psychological distress during these extremely challenging times. , for example through peer support groups or dedicated phone support lines.[13] In the US, grants were provided to address burnout and mental health wellbeing in the healthcare workforce.[14]

However, barriers to use external supports were mentioned such as, in Canada, the staffing shortage, fear of repercussions on their professional license and insurance, as well as fear of stigma from colleagues, family and the community.[37] In this Canadian study, workload and staffing shortage were the major stressors that prevented participants from finding time for self-care or taking time off during the pandemic because it was difficult to arrange for coverage colleagues (and it was already the case before the pandemic).[37] Same observations were quoted in the UK where GPs felt guilty from talking time off as this would burden their colleagues.[45]

3.4.1.3. Global impact on the GPs workforce of the early period of the pandemic : rather negative

The impact of the early period of the pandemic regarding the global and primary care workforce was most often negative: a decrease in the primary care supply was described by some authors[12, 14, 24, 35] although a trend to stay at work by hook or by crook was also observed.[37]

The first waves and certainly the lockdown decreased the HCWs supply in some ambulatory settings. According to a survey conducted in 69 countries, due to the lock-down and quarantine measures, many primary care clinicians **lost their jobs**, were furloughed, or had their hours dramatically reduced.[12] In US or Canada, the income lost led in some cases to insufficient staffing or even closures of practices, with potential implications for access to primary healthcare.[14, 37] Staff shortages was also experienced due to the **redeployment** to treat COVID-19 patients and administer vaccination programmes, placing a strain on primary care workforces.[9, 24, 41] Low numbers of health workers and harder working conditions made it difficult to boost the supply of health services.[41]

Sick leave due to COVID-19 was also a reason of decreased supply. For example, in Ireland, there was an increased absence-rates directly due to infection by SARS-CoV-2 in HCWs but there was also an overall drop in non-COVID-19 absence-rates implying workforce resilience to the high-pressure work.[24]

However, HCWs were also **stimulated to stay at work**. A lot of initiatives, as described in Chapter 3.2., were taken in many countries to keep the health care workforce (and sometimes the primary care workforce) at a sufficient level. GPs themselves were involved in the process. In Canada for example, as a shortage of staffing threatened some rural emergency departments to close, physicians felt an obligation to continue working to ensure continuity of healthcare services in their community.[37] Mandal et al. mentioned that many older physicians were unable to retire since there was person to take over the care of their patients. Regarding the funding to incentivize rural physicians to continue working and keep emergency departments open, *almost all participants revealed that they would prefer more time off to care for their physical and mental health needs rather than earning more money.*[37]

Finally, the **evolution over time on the indirect impact on the GPs mental health is not unequivocal**. In one hand, for some authors, it remained and even increased during the first months of the pandemic.[19, 37] In Italy, one survey showed that in the advanced stages of the pandemic compared to the first survey more GPs reported to suffer from psychological distress and serenity at working was even more impaired.[19] In addition to maintaining the introduced changes in daily work, contact tracing, frequent patients' phone calls, and patient information about the SARS-CoV-2 vaccination were challenging issues.[19] Moreover, the GPs indicated anger and disappointment due to inconsistent information and insufficient communication with health authorities which were less available at the advanced stages of the pandemic. Also, the communication with the hospitals regarding the clinical conditions of COVID-19 affected patients was unsatisfying for the GPs and did not improve over time.[19] On the other hand, GPs' self-confidence appeared to strengthen and their worries decreased with time.[28, 37] In Canada for example, almost all participants in a survey among 25 rural GPs reported that their mental health had worsened at the beginning of the pandemic but as they learned to adapt to the pandemic, their mental health either stayed the same or seemed to improve, although still at an overall lower level than their baseline from before the pandemic. This reflects the resiliency and adaptability of rural physicians in the face of adversity and the positive impact of adopted healthy coping strategies.[37]

The potential impact at longer term of the pandemic on the GPs supply is detailed in the next chapter.

3.4.2. Potential impact on the future supply of GPs

According to the framework from Anderson[1], factors playing a role on the workforce planning related to the supply side cover current workforce characteristics (including part-time or full-time working) and both entry to and exit from the workforce. Before the pandemic, some alarms were already mentioned such as the ageing workforce[8, 57] and the feminisation of the medical profession (because associated with a higher proportion of part-time work). In the UK for example, between 2008 and 2018, a trend to more part-time work than 5 years ago was observed. To be noted that this increase was identified in both genders.[1]

The potential impact of the COVID-19 pandemic on the future supply of GPs is sometimes described in the literature but is more often replaced in the global context of HCWs shortage to justify certain propositions of change in the future (as presented in Chapter 3.5.)

3.4.2.1. Possible less workforce

The COVID-19 pandemic was early associated, as presented in Chapter 3.4.1., with many negative impacts on the physical and mental health of HCWs, including GPs. Some of these impacts, such as long COVID, might decrease the future health care workforce capacity. In the US, the office of the Assistant secretary for planning and evaluation (ASPE) mentioned that long COVID may considerably impact future staffing (and remains a challenge for health care workers and their health).[14]

Trauma caused by the pandemic can also durably impact the well-being of the GPs and their professional involvement with the risk of a **substantial work attrition**.[1, 5, 26, 50, 57] In Canada for example, a survey among 25 rural GPs found that "*As the pandemic progressed, feelings of burnout evoked self-questioning about the purpose of working when they were unable to enjoy their personal lives, especially in younger physicians who may place higher value on work–life balance. They reported feeling like there was no end in sight and not having a life outside of work*.[37]

Leaving the profession for example by earlier retirement, is an option evoked by GPs in some publications. One systematic review revealed that there are wide variations in plans to leave medicine.[50] In Spain, burn-out would have had accelerated the number of primary care physicians who thought about quitting the profession reaching now a percentage as high as 37.5%, which leads to a situation that "*might become unsustainable in the anticipated and feared scenario of primary care managing the conditions neglected during the pandemic and those arising from it*".[55] In the US, a survey conducted of primary care physicians in early 2022 found that nearly two-thirds personally knew of clinicians who had retired early or quit during the pandemic and 25% expected to leave primary care in the next three years.[14] In Belgium, according to the Power to care study (Sciensano and KUL)[e], the percentage of HCWs that planned to leave the profession was 28% in September 2021 compared to 10% before the crisis. Details per health care profession were not available but physicians represented 15.4% of the sample in September 2021. Another Belgian survey showed that "*24 (11%) GP trainees and 13 (4%) GP trainers spontaneously mentioned losing their passion for their profession and one respondent actively considered quitting as a GP*. Although job appreciation was not systematically surveyed amongst the respondents, one out of 10 GP trainees and one out of 25 GP trainers spontaneously mentioned that they have lost their job satisfaction.[2]

Studies have shown, even prior to the pandemic, job dissatisfaction and burnout among physicians (and nurses) was associated with plans to leave their practice or the field.[14] For GPs, Anderson et al. mentioned that even before COVID, any complex factors were responsible for GPs leaving direct care, such as a lack of professional autonomy, feeling undervalued, and concerns about the safety of practice, all of which have a negative impact on morale. In the UK for example, the last GPs national work-life survey published in 2018 showed that 39% of registered GPs intended to leave direct patient care within the next 5 years (also these intentions are not always followed by actions).[1]

Furthermore, the number of GPs is not the single factor to be taken in consideration for estimating the future workforce. The supply of health services is also determined by **the productivity** of the HCWs and the involvement in time and energy in their job.[1, 41] Therefore there *is also concern that the pandemic pushed people to reduce their hours (or they had their hours reduced).*[14, 45]

This work attrition can provide a **vicious circle**: less workforce increases pressure on the remaining health care workers, putting them at increased risk of absenteeism and burnout…[41]

Some countries which were already struggling with proportionally low numbers per population of doctors, nurses, hospital staff, available hospital beds or low productivity before the pandemic are considered as **particularly vulnerable**. In Italy for example, an overburden of primary care is expected in the near future since GP workforces are declining.[19] In the UK, according to a survey among 23 GPs in September 2020, "*several GPs believed that the COVID-19 pandemic would*

[e] https://www.sciensano.be/nl/pershoek/na-20-maanden-covid-19-crisis-blijft-chronische-stress-pieken-bij-zorg-en-hulpverleners or https://www.sciensano.be/fr/coin-presse/apres-20-mois-de-crise-covid-le-stress-chronique-continue-de-menacer-les-professionnels-de-laide-et

continue to influence service provision in the upcoming year".[20] In the US also, the Health Resources and Services Administration's (HRSA's) Bureau of Health Workforce (BHW) estimates that by 2025, 37 states are projected to have a shortage of primary care physicians.[14]

3.4.2.2. More applicants to medical school?

We found no publication focusing specifically on the number of GPs to be trained in order to ensure sufficient future workforce. In the US, there is some evidence that despite, or perhaps in part due to the pandemic, the number of applicants to medical schools dramatically increased in 2020 and 2021, according to the Association of American Medical Colleges. In most years, the number of applicants increases by 2-3 percent, whereas it increased by 17 percent in 2021 compared to 2019.[14] However, these data encompass all physicians in training and do not allow to forecast the future situation in primary healthcare.

3.5. Propositions for the future workforce strategy

The pandemic is depicted sometimes as the opportunity to draw attention to several needs and propose changes both in the public health and the health care sectors (including primary care).[15, 19, 26, 44, 52, 55, 59] Several propositions focus on the preparedness for a future pandemic in terms of HCWs training, infrastructure improvement, etc. These recommendations are not reported below because far from the scope of this document.

Furthermore, according to several authors, one major priority for the post-pandemic future is to maintain **strong primary health care practice**.[9, 11, 13, 16, 41, 44, 52, 53, 60] As the World Bank mentioned, "*high-performing PHC are the most critical for managing the pressures coming to bear on health systems in the post-COVID world (demographic (aging) and epidemiological (e.g. non-communicable disease) shifts, changes in technology, and citizens' evolving expectations for health care)".*[52] However we do not pretend to present here the whole picture of the expected reform of primary healthcare. This deserves more than a rapid review.

According to our objectives, we focus on the workforce planning and the factors to be taken into account within the framework from Anderson[1]. Few authors mentioned potential actions on the **demand of care**, such as reducing unnecessary care.[40, 41] One systematic review emphasises this issue: "*As some nations are forced to do more with less in the post-pandemic period, learning from this 'natural experiment' in reduced care may help health systems identify and address unnecessary care, and move towards greater sustainability".*[40] Establish strategies to increase patients empowerment, education and self-care is therefore proposed by some authors.[2, 11, 38] However, supporting patients to self-manage requires well-resourced and supported teams which is developed in this chapter.[26] Investment in the availability and consistency of support for unpaid carers[8] and importance of excellent communication with patients[19, 60], adapted to the literacy level of each one[18, 20] are other ways to improve the factors related to the demand-side of the workforce planning.

The majority of the recommendations underline the **need of retaining HCWs** in the health care system or even more **increase the supply and the productivity** of the workforces.[41] Growth in the workforce alone is not sufficient to meet future needs. Create appropriate conditions to maintain the GPs at work, to ensure their productivity and adaptation to changing health needs and new ways of working or additionally, to allow task shifting are also evoked.[8] As mentioned in Chapter 3.1., the '**workforce strategy'** is *"the sum of efforts by relevant stakeholders to acquire, retain, develop, motivate, and deploy staff".*[8]

We develop here propositions or recommendations to support sufficient workforce in primary care for the future as formulated by authors of included publications. We do not pretend to be comprehensive but rather to provide food for filling the reflection of the Medical Supply Planning Commission. The propositions are organized below in 6 categories without hierarchy: Increase the GPs workforce, maintain ageing GPs in the job market and promote best geographical distribution; Protect GPs wellbeing; Propose some changes or improvements in the working process; Adapt the training; Reform the funding models; Organize evaluation. More details on studies included in this chapter can be consulted in Appendix 3, Table 5.

3.5.1. Increase GPs workforce and promote best geographical distribution

Although a pre-existing shortage of HCWs and an expected worsening of the situation is broadly highlighted in the world[13-15, 20, 41, 53], few authors evoked the question of the entry of physicians, and specifically GPs into the workforce.[35, 44] One rapid review mentioned that previous epidemics (SARS experience in Canada and Hong Kong) had already revealed shortfalls in primary health care capacity, and recommend to increase PCP numbers and attract medical students and residents to primary care.[44] This question of attractiveness of general practice is a concern commonly shared and adapted recruitment strategies are required since physicians' reputational and financial incentives often favour specialization.[1, 24, 52] According to the World bank: "*Several incentive approaches can be used, including lower costs to obtain certification, subsidized medical education, or adjusted reimbursement rates from central payers to lower salary differentials".*[52]

The ageing GPs population is another concern since this implies replacement of retired physician by a younger one. In Belgium, this question was already raised in the *New deal for general practice (Vandenbroucke nota)*[f] who specified that currently one and half young GP is needed for replacing one retired GP.

Furthermore, worries regarding the geographical distribution of GPs are also expressed.[8, 35, 37, 52] In the US for example, the ASPE suggested that public policy takes attention to underlying geographic and other maldistribution of workforce assets, through regulations, legislation, and funding.[14] In Hawaii the current shortage of physicians is addressed by increasing recruitment of local students to medical school and expansion of training, especially to rural communities.[35] Anderson et al. mentioned the experience of the Netherlands who have notable shortfalls in primary healthcare, particularly in rural areas, although models for integrated workforce planning informed the number of positions that are available for training places in the primary care setting. They concluded that "*it is essential that workforce planning is seen as just one component of a broader workforce strategy, including several actions to improve recruitment and retention"*.[8]

3.5.2. Protect GPs wellbeing and mental health

Many authors consider that the wellbeing of health care workers including primary care providers should be prioritized, notably for maximizing the recruitment and retention of HCWs.[1, 8, 12, 15, 17, 24, 26, 41, 45]

This requires to provide a better balance between work and private life.[35, 57] One interesting conclusion from a commentary mentioned in this context is that: "*For the physician workforce itself, better and more equitable support systems are needed to help improve work-life balance and ensure a more diverse future workforce*."[57] This also entails to ensure adequate work conditions and make the workload more manageable.[59] This issue is discussed in the next chapter.

Regarding interventions offering a specific support to the mental health of HCWs[1, 8, 15, 17, 59], many involve public authorities and policy makers such as working collaboratively with primary care clinicians to increase perceived autonomy[2, 12] or provide training in graduate and continuing medical education programs on self-help strategies and ways to avoid burnout and/or increase social support.[14, 38] Support and recognition from the government were clearly identified as factors protecting against distress.[51] As Collins et al. say: "*Systemic support contributes to GPs' feeling of high morale and that their work is respected and valued, which promotes positive psychological functioning and wellbeing*".[51] In Belgium, moral recognition for the role GPs have in the health care system, in society and in their patients' lives is clearly asked by GPs trainees and trainers to safeguard the core of GP practice.[2]

Encouraging collaborative relationships between general practices, teamwork, and social network is also proposed to preserve GPs' mental health.[51]

The ageing workforce is a major challenge shared by most health and care systems. Of course, changing the age of the workforce is not possible but some authors propose to develop strategies to support ageing staff, to use their considerable knowledge and experience by adapting their roles.[8]

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[f] *Vandenbroucke nota: https://vandenbroucke.belgium.be/fr/vers-un-new-deal-pour-le-cabinet-de-m%C3%A9decin-g%C3%A9n%C3%A9raliste or https://vandenbroucke.belgium.be/nl/naar-een-new-deal-voor-de-huisartspraktijk*

3.5.3. *Propose some changes or improvements in the working process*

In Belgium, one survey among GPs trainers and trainees proposed some measures to improve care during the pandemic and beyond (see Figure 3). Many of them are described in the subchapters below but it is important to emphasise that Belgian GPs asked clearly to be more involved in decision making processes concerning their work, finances, and organization.[2] This confirmed some statements from a review emphasizing the importance of inclusion of PCPs in pandemic response planning to recognize the essential role of PC in service delivery for communities, to contextualize responses to local circumstances and ensure adequate support and protection.[44]

Figure 3 – Measures proposed by Belgian GPs interviewed by Coenen et al. to improve GP care in the future

Measures to improve GP care during the COVID-19 pandemic and beyond

	Themes	Specifications	Citations
GP trainers and trainees	Administrative simplification	Uniform sick leave notes, patient education, IT tools, improving telehealth	
	Financial support	Telehealth consults, administrative employees, nursing employees, remuneration for multidisciplinary practices	
	Recognition for GP care	Participations of GP representatives in policy making, recognition for the central role of GPs in the health care provision to all	
	Communication	Clear guidelines and regulations towards the population, communication to subgroups	
	Patient education		*"Patients should be able to take more responsibilities to improve their health and understand possible symptoms."*
	Crisisplan	Better preparation for possible future health crisises by policy makers	
GP trainers	Increasing cooperation	With policy makers, other health care providers, paramedics	
	Health prevention	Vaccinations, preventive health care, information for the population	

Some changes in work process are particularly underscored by authors of publications retrieved in this review.

- **Promote multidisciplinary team and improve collaboration:** Several authors emphasize the importance of working in multidisciplinary primary health care teams in the future or primary care networks (as in England).[1, 3, 10, 13, 20, 26, 52] Team-based working is essential for the future including collaboration between primary healthcare and public health, but also with other providers in the health and care system such as community-based and outpatient care to manage complex cases of chronic disease and diagnostic services and acute care teams (including hospital setting) to detect and begin managing all new incidence of disease.[10, 22] The future of integrated care appears to be linked to the multidisciplinary work.[1, 52, 59] This is particularly important for chronic (multi-morbidity) care management[1, 26] In a Worldbank report, Baris et al. mentioned that: "*Engaging directly with communities, local teams can deliver health education and promotion; offer nutritional coaching and supplementation; identify subclinical illness; and help sustain adherence to treatment for diseases from diabetes to tuberculosis. This process may reduce health disparities*".[52] To obtain the optimal composition of these multidisciplinary teams some requirements are mentioned: working across traditional boundaries; introducing educational reform on the basis of competency-based training (see Chapter 3.5.4.); incorporating technology to improve productivity (see below) ; and developing new, collaborative models of care that actively engage patients, carers and other service users.[8] Improved communication between the different levels of care, including public health and with health authorities is also of importance.[19, 60] In Belgium, GP trainees and trainers stated that they would like better cooperation amongst primary care networks as well as other health care workers.[2]
- **Facilitate changes in the skill mix of the health and care workforce or task shifting**. This change aims partly to relieve pressure on GPs but also to improve access to preventive services and chronic disease management during a crisis. This can be accomplished in various ways, for example by the substitution of roles between health-care professionals or by technology (i.e. apps to support people with mental health problems for clinical psychologists, robot-assisted physiotherapy, automated hospital coding, etc.), the introduction of new roles such as physician associates, and by staff working in extended roles such as specialist nurses.[1, 8, 52] "*To facilitate effective changes in skill mix, factors to consider include the best way to develop appropriate knowledge and skill sets, overcoming professional boundaries, and ensuring the right organisational culture and institutional environment to foster change*".[1] This implies also to

specify responsibilities between different types of health workers, patients, or their carers and between all of these groups and technology.

- Reducing early staff retirement (not specific to GPs) by job sharing, part-time working, and flexible working and reducing on-call and out-of-hours commitments is suggested.[8]
- **Promote the use of technology**: Many authors propose to maintain the use of technology as a support of the HC workforce.[1, 3, 8, 13, 15, 19, 20, 24, 26, 28, 35, 41, 52]
  - Many **advantages** are quoted such as that it helps to keep GPs and patients safe from potential exposure during an epidemic[12]; save costs and time[19]; minimises delays and forgone care for all patients[12, 13, 41, 44]; offers benefits for certain population groups, such as those living in rural areas;[10] supports self-management of patients with chronic disease, especially among the pre-identified vulnerable patients[3]; foster transparency and accountability in PHC.[52] The use of clinical information systems, such as electronic medical records (EMRs), for identifying and contacting vulnerable patients who need close monitoring or the development of completed advance care plans with patients and emergency planning for "what if" scenarios are proposed.[26] In Belgium, according to a survey among Flemish GPs, most respondents recognized the value of risk stratification using EMRs to identify patients at higher risk of complications, but they mentioned barriers such as a lack of time and staff, ethical objections, and a limited knowledge on how to use the (EMR) system.[3]
  - Several authors have identified a lot of **barriers** in the areas of telemedicine. The most often quoted relates to the risk of increasing inequalities.[8, 9, 10, 16, 20, 41, 59] There are several difficulties encountered by patients increasing the risk of digital exclusion as low-technology literacy, aversion to telehealth, and inadequate internet connectivity or access to smartphones or laptops, especially among under-resourced and underserved patients[g].[9, 44] A lower patients and physicians satisfaction is also mentioned[28], maybe reflecting the need of information and training (for HCPs as for patients).[1, 8, 42] Studies have also identified safety issues due to missing physical examination (with a tendency to overprescribe, over-investigate, and over-refer); a scarcity of continuity of care; concerns about quality of care; and diminished possibility of emotional support especially in end-of-life care.[8, 10, 19] The impact on the GPs workload and stress is not so clear.[19] Infrastructure limitations (e.g. internet connectivity), regulatory barriers, concerns regarding patient confidentiality and safety, digital literacy issues, communication barriers and loss of financial revenue due to reductions in in-person consultations were also quoted.[9]
  - In order to insure telemedicine, several **needs** have to be answered such as sustained investment in robust, reliable, and secure information technology infrastructure (e.g. access to broadband)[12, 13, 16, 19]; financial support and/or sustained remuneration for telemedicine consulting[h] as reimbursement[1, 2, 12, 42, 61]; protocols and tools for physicians for the correct use of telemedicine;[38] appropriate legislations (e.g. medical liability across jurisdictions, cybersecurity and data protection)[9, 13].
- **Reduce administrative burden**. This objective is proposed by several authors[2, 6, 26, 35, 60] but without concrete solutions. In Belgium, for GP trainees and trainers, the need to simplify administrative issues regarding sick-leave certificates was a major issue of concern.[2] In June 2022, the Federal Government has lifted the requirement for an employee to provide his or her employer with a certificate for a 1-day sick leave.

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g In Belgium, according to Statbel 2021 data, the digital skills of 46% of Belgians aged 16 to 74 are very low.

h According to Tu et al., the three countries that were the highest in rates of virtual care in the pandemic period (Canada, UK and Sweden) were the three countries among INTRePID that had primarily capitation payment model primary care systems (whereby a physician has a set group of patients that they are remunerated to care for, regardless of the number of times a patient is seen) may be more amenable to virtual PCP visits.[30]

3.5.4. Adapt the training

The change or improvement in the working process exposed above needs not only organizational support but also an adaptation of the HCWs training and guidelines.[15, 18, 52, 62] A quotation from Canada is clear: "*Major reform is needed across the entire health and care education system to meet changing health and care needs*."[15] In another hand, according to an analysis of family practice in the US, COVID-19 pandemic reminded that the training of family physicians allows them to move between different sites of care to meet the needs of the community.[62]

Several changes or improvement are presented regarding the (future) training of GPs:

- **Training in multidisciplinary** (including the social sciences and humanities) instead of training in isolation to encourage collaborative working, greater interdisciplinarity and intersectorality.[15, 52]
- More **competency-led and community-oriented training** to develop generalist skills.[1, 52] This aims to treat multimorbid patients with complex needs and allows physicians, nurses, and any other professional group, to change roles.[8, 15]
- Reference to **technological advancements** (e.g. artificial intelligence, big data) and use of technology to create learning (e.g. virtual case), involving student in telehealth, etc.[6, 8] In Belgium, GPs reported that the introduction of telemedicine consulting and changing guidelines required new communication and organizational skills.[2]
- Higher recognition of the **capability and willingness of the public to self-care**. All health and care professionals must be equipped with the skills needed to work in collaboration with patients and their families and to facilitate them to make informed decisions regarding their own health (with adaptation to the each literacy level).[8, 15, 52]
- Promoting continuing **(life-long) learning to help GPs meet the varied needs of patients and communities but also to decrease the risk of work attrition**: Alongside measures such as more flexible working and allowing older professionals to avoid out-of-hours work, improving career development opportunities could be a valuable strategy to prevent early retirement.[8]
- Provide training in graduate and continuing medical education programs on self-help strategies and ways to avoid burnout.[14]
- Ensure good conditions to **junior doctors** to decrease some stressors such as fatigue, isolation, insufficient time to engage in healthy lifestyle measures.[56]

3.5.5. Reform the funding models

Financing is critical for the transition to high-performing PHC and many authors emphasise the need of rethinking the financial support of primary healthcare.[8, 17, 26, 52] It is not the purpose of this document to review the future financing of general practice but we can highlight the message expressed in the literature regarding the need of significant investments (not simply adjustments at the margins) to put PHC at the center of health systems.[8]

One publication illustrates clearly the statement: "*Many primary care services have been under serious financial pressures throughout the pandemic due to factors including a decline in consultations, increased costs for PPE, and changes in workflow and roles in response to pandemic restrictions (e.g., closed practices, clinicians working from home and using telehealth, diversion of staff to support COVID-19 testing and vaccination programs). These challenges have highlighted limitations to existing funding models, particularly fee-for-service models in countries that do not maintain dedicated staff with a chronic disease management role*".[26]

Beside traditional fee-for-service payments, line-item budgets, or capitation alone, financing innovations are emerging*, "sometimes called "value-based" payments, shift clinical and financial accountability to providers by adjusting and conditioning reimbursement based on cost, quality, and patient-experience metrics".*[52]

In Belgium, GPs trainers and trainees asked for financial support, not only for telemedicine but also for administrative or nursing employees and for developing multidisciplinary practices.[2] This is confirmed by another Belgian survey which found that GPs need the establishment of a stable financing structure supporting staff (nurses and dieticians) so that they can play a role in managing chronic patients in times of a crisis.[3]

3.5.6. Organize evaluation

Several authors emphasize the need of evaluation for preparing the future.[8, 16, 44, 60]

Assessment of the COVID-19 primary care response is one issue mentioned.[8, 17, 44] Careful evaluation of the rapid expansion of **remote consultations** is a crucial point of attention (in terms of access to services, patient safety, staff morale, and risk of digital exclusion).[8, 32, 60] Regarding the workforce capacity, further evidence is needed to know whether the content of remote consultations is equivalent to face-to-face consulting and what is the impact of remote consultation on length of appointments and overall workload.[32] The impact **on well-being and mental health** is another point requiring to measure, monitor and identify important stressors in GPs (including young physicians) with the aim to guide future intervention development.[56] Differences in effects on male and female GPs and use of support services should be further analysed.[45]

According to the KCE report on **the performance of the Belgian health system** in 2019[63], "*a sufficient (in number and skills), robust, flexible and well-motivated workforce is key for the performance of the health system, as it has again been illustrated by the recent COVID-19 crisis*." However only a small number of countries reported indicators aiming at assessing the **adequacy of the health workforce, both in terms of supply and skill composition**.[41] This can be improved. Outside the pandemic impact, the COVID-19 crisis is an opportunity to remind the importance of performance evaluation and assessment of the health workforce strengths and gaps regarding the transition to **team-based delivery**. As mentioned by the World Bank, "*Primary care teams need quality measurement tools that promote accountable performance by rewarding team members for managing complexity, solving problems, and thinking creatively to address patients' specific circumstances. Priorities for outcome and performance management include people-centered reporting and metrics.*[52] The Patient-Reported Indicator Survey (PaRIS) of People Living with Chronic Conditions will provide results on this matter in 2023. This is the first international survey of patient-reported health outcomes and experiences of adults living with one or more chronic conditions who are managed in primary or other ambulatory care settings (PaRIS-survey-Patients-with-Chronic-Conditions-June-2019.pdf (oecd.org)*.*[i]

The PaRIS survey fills a critical information gap in primary care, focusing on (1) Patient-Reported Experience Measures (PREMS), which measure how patients experience health care and refers to practical aspects of care, such as accessibility, care co-ordination and provider-patient communication and (2) Patient-Reported Outcome Measures (PROMS), which provide information on how patients assess the results of the care they receive. PROMS contain information about outcomes such as quality of life, physical functioning and psychological well-being.

This is also an opportunity to remind the KCE reports 278 and 290 which proposed several years ago to increase the performance of workforce planning in Belgium with some recommendations and suggested to carry-out **post-hoc analysis of the projection models** (to analysis deviation from expectations) and **evaluation of the impacts of policy measures taken with regard to planning, on care organisation and expenditures**.[64, 65] Assessing the new migration trends should also be needed.

[i] https://www.oecd.org/health/health-systems/PaRIS-survey-Patients-with-Chronic-Conditions-June-2019.pdf

4. DISCUSSION

The objectives of this rapid literature review was to identify factors having impacted the **GPs workforce** during the **COVID-19 pandemic** in order to support the discussion of the **Medical Supply Planning Commission** regarding the future estimation of physician supply requirements.

Many questions are not answered by this work. For example, we did not consider the impact of COVID-19 pandemic on the whole health care system (for example the workload in the emergency department or the ICUs). We did not investigate the propositions formulated by some international organizations regarding preparedness for a future pandemic.

Furthermore, we do not pretend to propose a vision of the future general practice regarding the challenges and responses for the next years. This huge topic deserves a lot of research questions and involvement of many stakeholders which is currently carrying out in Belgium with the green paper written by a group of Belgian GPs "*Together we make change happen*!"[25] and with the ongoing "*New Deal for general practice*" project.

Several limitations have to be formulated regarding this rapid review. We performed the literature search in two databases and selected publications in English, French and Dutch which can have led to miss interesting studies. To minimise this bias, publications identified by experts and by references of the included studies were also reviewed. The search date is August 2022 and a lot of publications refer to the first waves of the pandemic. It is possible than since then, additional information was published but due to the time constraints, it was not possible to perform an update of the search strategy. One reviewer screened, selected and extracted data that may have introduced bias, which is an acknowledged limitation in rapid review methods.[44] This literature review does not pretend to be exhaustive ; provided examples are illustrative and does not mean that all examples, situations and impacts are described. The categories used to report analysis' results are also questionable and can overlap. For example, demand of care is not entirely independent of supply of health care workforce since a limited supply of HCWs could lead to reduce service utilization and in the opposite, an excess supply of HCWs can induce higher service utilization (by supplier-induced demand).[66]

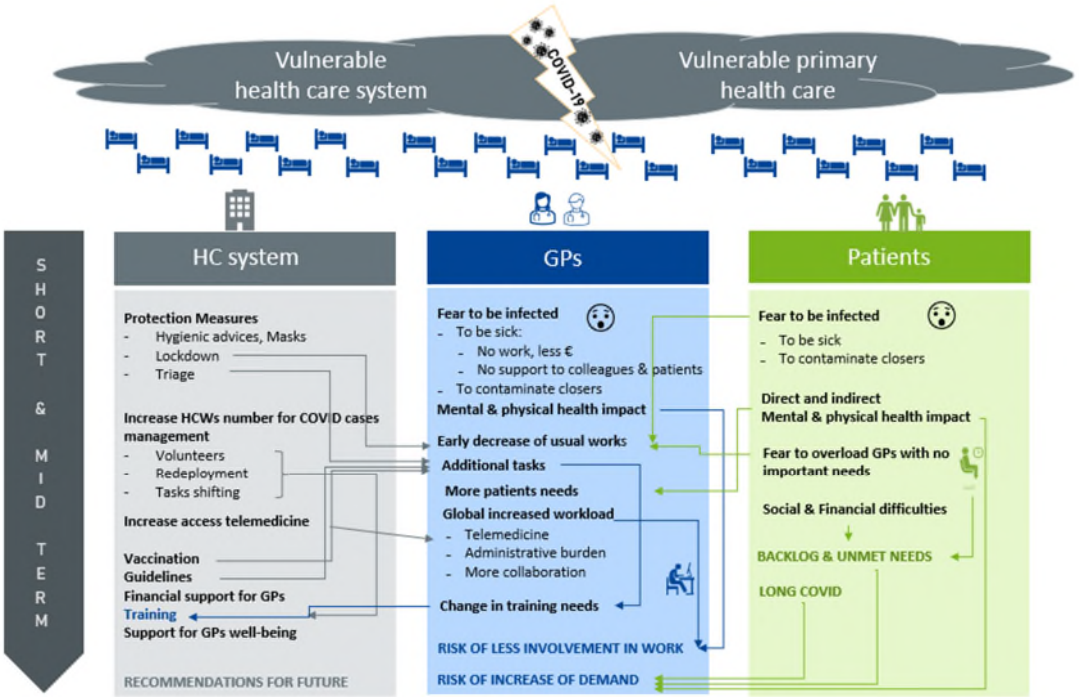
Results are based on several kinds of publications, from systematic review to commentary and from many countries. However, despite differences in design, methods or contexts, some consensus emerged on the strengths (adaptability, resilience) and the weaknesses of the primary healthcare in front of the pandemic.[9, 12, 44] In particular, many authors recognized that COVID-19 pandemic has exacerbated several pre-existing problems (shortage of GPs, burnout, etc..).

As shown in Figure 4, the COVID-19 and the strategies used to manage it hugely impacted GPs themselves and the population, patients and closers. **On the demand side**, GPs experienced early additional tasks related to the SARS-CoV-2 infection such as triage, testing, vaccination and they were confronted to specific needs of their patients (e.g. needs of information, mental health care, proactive care….). Some changes in the work process such as the use of telemedicine and the increase of administrative work required important efforts in some primary health care practices. In the next future, GPs risk to be confronted to an increased demand of care because of the COVID and long COVID patients, the post-pandemic effect on the population mental health, unmet needs due to early disruption of routine or chronic care and a lower ability of patients for self-management beside the already expected effects of the ageing multimorbid population. The fact that many non-COVID-19 patients did not seek medical attention or were unable to access needed care during the first waves of the pandemic with delayed diagnoses, delayed care or foregone care as consequence is particularly concerning.

On the supply side, despite several coping strategies, the mental health impact of the pandemic is underlined among GPs, in addition to physical health effects in terms of COVID, long COVID and exhaustion. Several surveys mention a risk of work attrition and an intention to leave the profession, for example by early retirement, expressed by general practitioners themselves. We do not know whether these affirmations will be followed by concrete actions.

In 2022, the KCE published the report of the impact of two years of COVID-19 pandemic on nurse staffing in Belgian intensive care units based on a large scale survey.[67] Similar concerns were expressed in terms of well-being and mental health impact or risk of work attrition and the fact that the COVID-19 pandemic magnified existing problems and created new ones.

Figure 4 – Overview of the impact of the COVID-19 pandemic on the general practice



This figure shows the impacts of the COVID-19 pandemic as observed at short and mild terms. The many arrows highlight the interrelations between these impacts.

Workforce planning is a very difficult exercise. We have retrieved no real projection for future or estimate of number of GPs to be trained and recruited in the next years in light of the changes in practice caused by the pandemic (rather recommendations for retaining or supporting HCWs). This is understandable. As mentioned by Anderson et al., given training lead times, workforce planning requires reliable and detailed long-term forecasts of expected demand for health care and trends in health-care needs and also estimates of the skill mix needed in the workforce. So many factors can impact these forecasts (e.g. changing health and care needs and priorities, complexity of the health care system, evolution of the clinical practice and delivery models, political requirements, international market for health-care professionals) that is a paramount challenge.[1] For instance, this analysis was conducted irrespective of other major trends threatening global health such as the economic crisis or the climate changes.

The ability of predictive modelling to generate accurate long-term workforce capacity projections is thus limited.[14] In Belgium, the Belgian model is recognised as one of the most complete projection model and efforts are currently made to increase the number of interns who specialise as GPs. According to a KCE report 313 on the performance of the Belgian health system published in 2019 (before the COVID-19 pandemic), medical supply is expected to increase more from 2026 onward, with an increase in the number of FTEs of almost 8% between 2031 and 2036.[63] However, whether it will be enough to compensate the increased demand is unknown.[63] Furthermore, the reliance on foreign HCWs which increased in Belgium these last years could become more difficult in the future (and even not ethical).

Anderson et al. suggested to progress in workforce strategy by drawing on factors from both the supply and demand sides and moving away from a focus on individual professions to consider the collective health and care workforce and also prioritise the health, morale, and wellbeing of its workforce to maximise the recruitment and retention of staff.[8] This implies to take into account the entire workforce rather than professional groups in isolation (with focus on optimal skill mix and integrated services), the productivity of the workforce (emerging new models of care, technological advancements, well-being of all members of the workforce, including informal carers) and consider changes in health and care needs.[8] Some of these propositions were already formulated in several KCE reports. For example, reports 290 and 278 recommended a transversal planning of the health professions i.e. a transition to simultaneous planning of the health professions between which task

delegation is possible or desirable.[64, 65] There are also current discussions on practice assistant, advanced practice nurses in general practices or other means to alleviate some tasks for GPs.[25]

Further qualitative and quantitative research may help to further identify and understand these huge challenges.

5. CONCLUSION

Several direct and indirect effects of the COVID-19 pandemic on general practices have been identified across all countries, including Belgium. There were changes in the demand of care (e.g. less routine care at the early beginning, more mental health disorders), in the working process (notably with the explosion of telemedicine but also the participation in public health tasks such as triage, testing, vaccination…) and in the GPs workforces themselves (e.g. exhaustion, COVID-19, burnout). These changes are all the more important as the pre-existing vulnerability of primary health care has already been described.

In the same time, the COVID-19 pandemic is considered as an opportunity to think about some changes in the health care system. And this is particularly important for general practices since a **strong primary health care** is critical to make health systems more resilient to future in terms of ageing population, growing burden of chronic conditions and also public health emergencies.

However, many challenges have to be addressed. Regarding the scope of this rapid review, the workforce planning, uncertainties and complexity are huge. For example, we do not know whether the expected work attrition of GPs will be realized or whether the unmet needs will significantly increase the demand of care in general practice. Even the evolution of the organization of the work process of GPs is currently questioning by Belgian GPs with the publication of the green paper "*Together we make change happen*!"[25] and with the project "*New Deal for general practice*". Maybe the most important message of this rapid review is that workforce strategy should stop to consider each professional group in isolation but rather the whole healthcare workforce, with the possibility of task shifting and adaptation to local needs of the population, with the paramount need of investing in financial support, mental health, work-life balance, digital infrastructure, etc. in order to maintain or improve the attractiveness of the profession of care providers.

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