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National primary care responses to COVID-19: A rapid review of the global literature

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Full Title:

National primary care responses to COVID-19: A rapid review of the global literature

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Keywords: Rapid review, primary care, guidelines, COVID-19

37 **ABSTRACT:**

38 **Objective:** To examine available guidelines and policies for diagnosis, treatment, management
39 and support of COVID-19 patients in primary care and to explore the ways in which health
40 systems can support community-centered primary care in responding to the increasing demands
41 of the COVID-19 pandemic.

42
43 **Design:** Rapid review and narrative synthesis

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45 **Data Sources:** PubMed, Embase and Google, as well as the websites of relevant national health
46 departments were searched from January 1 2020, to April 24, 2020.

47
48 **Eligibility Criteria:** Documents included must be issued by a national health authority, must be
49 specific to COVID-19 care, directed at a healthcare workers or managers and must refer to the
50 role of primary care in the COVID-19 response.

51
52 **Results:** We identified 17 documents from 14 countries. An adapted framework on primary care
53 challenges and responses to pandemic influenza framed our analysis. Guidelines generally
54 reported on COVID-19 service delivery and most made specific recommendations for ensuring
55 continued delivery of essential primary care services through telehealth or other virtual care
56 modalities. Few offered guidance to support the surveillance as a public health function. All
57 offered guidance on implementing outbreak control measures, largely through flexible and
58 coordinated organizational models with partners from various sectors. There was a lack of
59 guidance to support supply chain management and practice resilience in primary care, and lack

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60 of personal protective equipment represents a serious threat to the provision of quality care
61 during the pandemic.

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63 **Conclusions:** Current national primary care guidelines for COVID-19 provide guidance on
64 infection control and minimizing the risk of spread in primary care practices, while supporting
65 the use of new technology and coordinated partnerships. However, to ensure primary care
66 practice resilience and quality of care is upheld, guidelines must offer recommendations on
67 supply chain management and business continuity, supported by adequate resources.

68
69 **ARTICLE SUMMARY: (Strengths and Limitations of this Study)**

- 70 • This is the first rapid review, to our knowledge, to examine national guidelines for
71 COVID-19 treatment and management in primary care.
- 72 • This review includes both English-language and Chinese literature.
- 73 • We have included guidelines from a diverse range of countries to compare global
74 approaches to COVID-19 guidelines for primary care.
- 75 • The review relies on grey literature to capture national guidelines as there is a lack of
76 academic literature on primary care guidelines for COVID-19.
- 77 • Our analysis is limited to those studies published in English and Chinese, thus we miss
78 key regions.

79
80 **INTRODUCTION:**

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82 Primary care is the provision of integrated, accessible health care services by clinicians who are
83 accountable for addressing a large majority of personal health care needs, developing a sustained

partnership with patients, and practicing in the context of family and community (1). In keeping with the commitments of the Declaration of Astana and of the political declaration on Universal Health Coverage, primary care services, as a foundational and central element of robust health systems, are at risk of being overwhelmed by the current coronavirus disease 2019 (COVID-19) pandemic. Primary care settings are, in many places, patients' closest and first point of contact with the health system. In the current pandemic, we have seen tremendous pressure placed on health care systems. China responded to these demands by rapidly building up dedicated tertiary care facilities and other treatment centres in Hubei and mobilizing thousands of healthcare workers from other provinces. Other health systems are not equipped to quickly increase hospital and health workforce capacity. Thus, in both high income and low-and-middle income countries (LMICs) primary care is poised to become increasingly crucial as secondary and tertiary hospitals are strained by patients requiring intensive management (2). Primary care is key to well-functioning health systems, and has played an important role in managing patients and implementing pandemic policies during the 2009/A/H1N1 pandemic (3). Indeed, the 'primary care safety net' has been described as key to treating underserved populations and to providing surge capacity in such circumstances (4).

As the onset of COVID-19 is hallmarked by mild to moderate symptoms during which individuals are infectious, primary care has a crucial role in the prevention, triage, diagnosis and management of patients in the community. Robust and comprehensive guidelines are needed to support primary care response during pandemics (5). Indeed, primary care has been previously identified as providing key public health functions including, health protection and promotion, disease prevention, surveillance and response, as well as emergency preparedness (6). However, current guidelines are heterogenous and span care provided in the primary care, home care

and/or isolation guidance. Given that the main benefit of guidelines is to improve quality of care received by patients, there is a need for rapid research and synthesis to inform guidelines creation that supports primary care providers in delivery quality care during the pandemic (7).

METHODS

In light of the rapidly evolving situation, policy makers require evidence synthesis to produce robust guidance for primary care providers. The WHO recommends the use of rapid reviews to provide such evidence (8). We conducted a rapid document review with a qualitative analytical approach to allow for narrative synthesis of the data (9).

Our review is informed by an adapted framework outlining primary care challenges and responses to pandemic influenza (Table 1) (10). The framework outlines four key domains: clinical service delivery, public health functions of primary care facilities, operational level functions at the primary care facility, and the health systems level factors – all of which may act as barriers or facilitators to care provision.

Table 1: Adapted framework of primary care challenges and response to pandemic influenza.

Domain of Practice	Challenges during a pandemic	Response to be addressed
Clinical service delivery	Surge in demand for primary care services	Ways to enhance surge capacity
	Sustaining other urgent or essential primary care services	Maintenance of urgent and essential primary care clinical services
Public health functions	Effective surveillance	Contributing data and specimens for clinical and laboratory-based surveillance
	Implementing control measures	Assisting public health units with contact tracing, triage and

		monitoring people in isolation or quarantine
Primary care facility operational level	Minimizing the risk of COVID-19 spread in the practice setting	Structuring clinical facilities and stockpiling personal protective equipment to enable effective infection control
	Access to medications	Reliable delivery of medications and essential equipment to the practice
	Ongoing communications with patients, public health and the health system	Strengthening capacity of communication systems
	Ensuring operational continuity	Organizational arrangements to sustain efficient and effective services
Health system level	Overall organization of the health system	Integrated planning across the health system, e.g. with other primary care facilities, ambulatory care services, public health units and hospitals
		Appropriate legislation, e.g. to address professional accreditation, indemnity and ethical concerns
		Financing mechanisms for general practice

Adapted from Patel MS, Phillips CB, Pearce C, Kljakovic M, Dugdale P, Glasgow N. General Practice and Pandemic Influenza: A Framework for Planning and Comparison of Plans in Five Countries. PLOS ONE. 2008 May 28;3(5):e2269

Information Sources and Search

To identify relevant documents we searched PubMed, Embase and Google, as well as the websites of relevant national health departments. We searched guidelines from January 1 2020, to April 24, 2020. We applied the following standard Boolean phrase during the searches: ['COVID 19' AND 'guidelines' AND 'ministry of health' OR 'centres for disease control' AND country name]. We also searched references of the selected relevant policy documents for additional related information. We consider guidelines to be documents issued by national authorities within countries that communicate the intention of that national authority as to how COVID-19 should be diagnosed, treated and managed in a primary care setting.

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Inclusion Criteria:

To be included in our review, the document must be issued by a national health authority (Ministry of Health, National Centre for Disease Control, etc.), it must be specific to COVID-19 care, directed at a healthcare workers or managers and must refer to the role of primary care in the COVID-19 response. If the documents were published in series, the most recent series was considered. We chose countries from each of the six WHO regions in order to aim for geographic diversity. Countries were chosen based on their number of reported cases, with oversampling of countries with higher reported case numbers, as well as the availability of English or Chinese language documents.

Analysis procedures:

The data were analysed using elements of both content analysis and the Framework method using the conceptual framework above to guide analysis (11,12). We conducted a descriptive summary of the characteristics of included documents. We provide a narrative synthesis of the ways in which selected countries are addressing the domains of primary care practice as per our framework.

Patient and public involvement

While we did not directly involve patients or the public in the conceptualization of this study.

RESULTS

We identified 17 documents which comprised national COVID-19 guidelines. Of these 11 were general national guidelines for COVID-19 which referred to primary care within the text, five

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3 160 were specific to primary care and three had primary care as a specific sub-section. Table 2
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5 161 provides an overview of these documents. Documents meeting our study criteria were found
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7 162 from China, Malaysia, the Philippines, New Zealand, Australia, Canada, the United States, the
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9 163 United Kingdom (UK), Ireland, Ethiopia, Nigeria, South Africa, Sri Lanka and India. Table 3
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11 164 provides a summary of our results.
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17 166 **Clinical Service Delivery**

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19 167 Guidelines from the Philippines, China, Canada, the United States, the UK and Ethiopia
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21 168 described recommendations to manage surge capacity in primary care facilities during the
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23 169 COVID-19 pandemic. Guidelines from the Philippines and the UK provide guidance on the care
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25 170 of common (eg respiratory) infectious diseases in the context of COVID-19, and describe the
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27 171 reorganizing of existing primary care networks to ensure collective capacity within the health
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29 172 system. The Philippines guidelines call on local government units to organize existing health
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31 173 care provider networks across the public and private sector to optimize the COVID-19 model of
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33 174 care (13). The UK guidance asks practices to work with their Clinical Commissioning group to
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35 175 create regional models of care that suit their context (14). Guidance from China describes
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37 176 prioritizing staff, medicines and PPE for designated hospitals, but also capacity building the
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39 177 workforce system-wide through technical trainings to ensure surges can be effectively managed
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41 178 (15,16). The United States guidance highlights that planning for a surge in patients with
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43 179 respiratory infection should be a primary goal of health facilities (17). However, the document
44
45 180 does not outline recommendations for action beyond ensuring adequate staffing. This is similar
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47 181 to guidance from Ethiopia which encourages providers to allow for expanded service hours when
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49 182 needed to ensure access to care during surges (18). Canadian guidance expands upon this and
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describes the need for surge capacity planning to ensure there is additional equipment and staff to meet demand and prevent burnout. The guidance includes strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlines a overall health system risk management approach including the scenario in which primary care services are "faced with an overwhelming volume of patients," (19).

Few jurisdictions in our review recommend care for persons with COVID-19 in the community (primary care supported home care) as an overarching national approach and thus, few guidelines described the ways in which primary care service delivery should encompass the care of individuals with COVID-19. The United States guidance described how primary care providers should arrange for a health care worker to check in with patients under home care for COVID-19 through telephone or patient portals (17). New Zealand guidance described how the provision of active-monitoring of non-hospitalized probable and confirmed cases is the responsibility of the public health unit unless there has been clear delegation to another provider (20).

Guidance from Canada, Ireland, the UK, Sri Lanka and Ethiopia described the maintenance of urgent and essential primary care clinical services. The majority of these recommended the use of remote consultations offered via telehealth (14,18,19,21). Guidance from Canada also outlined the need to ensure continuity of time-sensitive essential services such as contraception, abortion, testing for sexually transmitted infections, and selected immunizations, as well as the need for providers to track deferred services for later follow up (19). Guidelines from Ethiopia similarly called for referral or deferral plans for patients that do not need acute care (18). Guidance from

the UK described the potential to use dedicated home visits for those patients at high risk for severe COVID-19 infection (14). The guidance also described the need for mental health and psychological well-being services in primary care, as well as advanced care planning and palliative care services.

Public Health Functions

Guidelines from China, Canada, Malaysia, Ethiopia, Nigeria and India offered information on the ways in which primary care facilities can support surveillance activities (16,18,19,22–25). Surveillance activities, as per our framework definition, may be broadly categorized as the provision of biologic samples or data to public health units as part of larger active surveillance activities. No guidance in our selected documents described the collection of biologic samples. Guidance from China, Malaysia, Ethiopia and India described a process whereby primary care would collect information of suspected individuals and transmit this information to public health teams for further investigation (15,18,22,24). Guidance from Nigeria recommended that providers should maintain a screening registrar of patients (23). Both Canadian and Australian guidelines highlighted that local public health units are responsible for reporting COVID-19 cases to provincial, territorial or state public health authorities (26,27). Guidance from India described the role of community health workers who have been mobilized to support in contact tracing (24).

Most guidance outlined steps towards the implementation of control measures within primary care facilities. Guidance from the Philippines, Sri Lanka, the United States, Ireland, and the UK specifically described a process which included phone-based triage (13,14,17,21,28). In the

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3 229 Philippines, Sri Lanka, Ireland and the UK patients reporting symptoms of COVID-19 over the
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5 230 phone would be triaged to designated COVID-19 assessment or treatment sites for further
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7 231 investigation (13,14,28). In the UK (NHS 111) and United States, patients would be triaged/
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9 232 diagnosed over the phone to determine whether they can be presumed to be COVID-19 positive
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11 233 and advised to remain at home and self-monitor (14). Guidance from Canada, Malaysia, South
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13 234 Africa, Ethiopia described the role of primary care facilities in screening, triage and referral
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15 235 (26,19,22,29,18). Guidance from the UK, Ireland, the United States, China, Malaysia and
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17 236 Nigeria also specifically highlighted the need for patient screening through signs (cough?, fever?
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19 237 etc.) and receptionist screening through questions (14,16,17,22,23,28).
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26 239 **Primary Care Facility Operational Level**
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28 240 At the primary care facility level, guidance from all included countries offered recommendations
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30 241 for minimizing the spread of infection within primary care facilities through strategies to
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32 242 minimize contact, rigorous infection prevention and control procedures and the use of personal
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34 243 protective equipment (PPE). Guidance from the Philippines and Sri Lanka recommended
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36 244 telemedicine to minimize contact, while guidance from Ireland suggested offering dedicated
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38 245 clinic hours to see symptomatic patients and to schedule these appointments in succession
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40 246 (13,21,28). Nigeria similarly recommended that health care facilities bundle care activities to
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42 247 minimize exposure to symptomatic patients (30). Guidance from Canada, the United States,
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44 248 Ireland, the UK, Australia, Sri Lanka, Malaysia, South Africa and Nigeria described the need to
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46 249 ensure physical distancing within primary care facilities and the need to set up dedicated areas
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48 250 for patients with symptoms of COVID-19 (14,17,19,21,22,27–30). Guidance from the United
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50 251 States, Ireland, New Zealand, Australia, Sri Lanka and South Africa specifically recommend
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3 252 providing symptomatic patients with a disposable surgical mask upon entry to the clinic. All
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5 253 guidance reported on the need for staff PPE complemented with frequent hand washing and
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7 254 avoiding touching one's face. Guidance from Sri Lanka described clothing choices (wearing
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9 255 short sleeves) and personal grooming measures (keeping clean shaven and tying hair back) to
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11 256 support the use of PPE and appropriate hygiene (21). Canadian guidelines provided advice on the
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13 257 reprocessing of N-95 respirators by staff (26).
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18 259 Guidance from Canada, the United States, the UK and Ethiopia described measures to ensure
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20 260 that patients had uninterrupted access to medications (14,17–19). Guidance from Ethiopia
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22 261 recommended facilities develop plans to expedite medication refills (18). Guidance from the
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24 262 United States encouraged providers to reach out to high risk patients and ensure they have
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26 263 sufficient medication (17). Guidance from the UK advised practices not to increase repeat
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28 264 prescriptions so as to reduce supply chain pressure (14). Further, the guidance made an urgent
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30 265 request for practices to change their policies and ensure they accept repeat prescription orders
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32 266 online through the practice website, to support population-level physical distancing policies.
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34 267 Guidance from Canada encourages practices to implement a system for prescription renewal that
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36 268 does not require in person visits, as well as to be flexible in allowing patients to stock up on
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38 269 opioid agonist treatments and medication to manage chronic pain (19). Canadian guidance was
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40 270 unique in offering information on supply chain issues and management, with complementary
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42 271 prevention and mitigation strategies.
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46 273 All guidance reported methods of telephone communication with the wider health system either
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48 274 as part of telephone triage or referral to onward tertiary care. Beyond the health system, guidance
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3 275 from the UK described an online system linking the NHS and the Department for Work and
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5 276 Pensions to ensure acceptance of digital isolation (‘sick’) notes (14). Guidance from China,
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7 277 Canada, the United States, Ireland and the UK specifically described the use of
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10 278 telecommunications technology to ensure ongoing service delivery (14,16,17,19,28). Guidance
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12 279 from China reported the use of smart-phone apps to connect with patients, as well as to ensure
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14 280 communication between the health system and community groups mobilized to respond to the
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16 281 pandemic (16). Guidance from the UK (NHS Covid-19) includes online guidance and self-
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18 282 assessment. While Canada calls for the development of on-line tools for self-assessment and self-
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20 283 monitoring in different languages (19).
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26 285 Guidance from the Philippines, China, Canada, the United States, the UK and Ethiopia reported
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28 286 on strategies to ensure operational continuity of primary care facilities (13,14,16–19). Guidelines
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30 287 from the Philippines and Ethiopia recommended the creation of staffing plans to address
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32 288 potential human resource shortages (13,18). Guidelines from the United States encourage
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34 289 individual practices to plan for absenteeism through cross-training of current employees,
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36 290 extending hours, or hiring temporary employees (17). Guidance from Canada, China and the UK
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38 291 encourage cross-organizational collaboration to maximise clinical capacity through relocation of
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40 292 staff or services based on skills, need and available training (14,16,19).
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47 294 **Health System Level**
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49 295 All guidance referred to some form of integrated planning across the health system, most
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51 296 commonly this was through the triage, notification or referral processes. Guidance from the
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53 297 Philippines described coordination between the Department of Health and local government
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units to form province- or city-wide health systems incorporating private and public sector care in order to respond to SARS-CoV-2 (13). Guidance from the UK encouraged primary care practices to engage with research programs, work with community pharmacy and community services, and to provide non-medical support through collaboration with social prescribing link workers (14). Guidance from China reported on the need to mobilize different organizations to improve case finding including all level of healthcare facilities, the primary level of government organizations and employers to support the pandemic response (16). This was facilitated by a call for improved data sharing among different departments through regular meetings and working groups. From a grassroots perspective, guidance from India encouraged community health workers to create a supportive local environment by talking to local influencers, planning community support for high risk groups, developing community networks for support, help develop community household emergency contact lists (24). In the United States, guidance encourages primary practices to engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods (17).

National guidelines from Sri Lanka, China and Canada described legislation (16,19,21). Guidance from Sri Lanka called for primary care providers to seek police or legal support in accordance with the Quarantine Law for patients who refused to be admitted to hospital or undertake home isolation (21). In the guidance from China this included an explanation of policies which grade each county based on level of risk of COVID-19 outbreak and tailoring interventions and controls according to the risk level (cite). Guidelines from Canada included a section on the legal considerations that may arise during the provision of COVID-19 healthcare and denotes action for federal, provincial/territorial governments as well as regulatory authorities

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and healthcare organizations to support the pandemic response (19). From a financing perspective, guidance from China asked local governments to commit funding and materials, such as PPE and medical supplies, towards COVID-19 prevention and control (16). The Canadian guidelines called for provinces and territories to establish new billing fee codes for virtual consultations and telephone prescribing (19).

DISCUSSION

The primary goal of clinical guidelines is to help improve quality of care (7). Our rapid review findings highlight opportunities to support primary care facilities through the use of telehealth, as well as flexible and coordinated organizational models and human resource planning to ensure surge capacity can be managed under primary care. This review also underscores the need to ensure a safe working environment through appropriate PPE resource allocation. There is need for strengthened guidance on access to medication, ensuring operational continuity of primary care facilities and research on optimal configuration of primary care services for a resilient response.

Our review found that telehealth plays a key role in national guidelines for COVID-19 and offered a way to provide clinical service delivery and public health functions in primary care. Importantly, countries such as Canada have made clear in national guidance the financial mechanisms available to bill for primary care telehealth services (19). Others, such as Australia, have provided similar mechanisms, however, these are not explicitly included in national guidelines (31). Telehealth has the potential to provide accessible, comprehensive and continuous care for both patients with COVID-19, and those requiring routine care for other

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3 344 health needs, including psychosocial well-being needs; however, caution is warranted in viewing
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5 345 technological solutions as a panacea to all patient groups given the known challenges to access in
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7 346 under-resourced settings and to under-served populations (32). Health systems will also face
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9 347 structural challenges to scaling and sustaining telehealth, as well as ensuring onward linkage to
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11 348 care, as demand outpaces capacity. For example, the telehealth network in Ontario, Canada
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13 349 experienced a day long shut down due to technical issues after media coverage on telehealth
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15 350 screening (33). In addition, many primary care clinics in LMICs may not have sufficient health
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17 351 information systems, internet connection, and online payment options to effectively operate
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19 352 telehealth. As models of telehealth are developed, they should be clearly communicated in
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21 353 national guidelines.
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28 355 Our findings also show movement at the primary care facility level and the health system level
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30 356 towards flexible and coordinated organizational models to support service delivery and public
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32 357 health functions. Available guidelines require primary care to provide a range of COVID-19
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34 358 services include screening and assessment, home care and discharge support, as well as attend to
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36 359 the ongoing routine care needs of patients. In some countries, primary care must also coordinate
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38 360 with testing centers or designated COVID-19 hospitals. To achieve these goals, guidelines report
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40 361 on establishing partnerships through existing or newly formed networks of primary care facilities
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42 362 and other health system actors, including both public and private sectors. While national
43
44 363 guidelines from the Philippines specifically refer to partnerships with the private sector, there
45
46 364 have been other examples of coordination with the private sector to strengthen health system
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48 365 capacity for triage in primary care. Public Health Preparedness Clinics in Singapore and
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50 366 respiratory clinics in Australia, which actively involve private primary care practices in the
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3 367 COVID-19 response, are a promising model to build capacity for triage in primary care (34,35).
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5 368 In many LMICs, private providers are often the first contact for patients (36). Private care
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7 369 partnerships have previously proven promising in providing quality care for tuberculosis (37).
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10 370 However, coordinated and flexible organizational models will be challenged by pre-existing
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12 371 health system fragmentation. Countries will need to actively strengthen linkages between
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14 372 primary and secondary care to ensure that guideline recommendations can be consistently
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16 373 followed, even during surges.
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21 375 National guidance from the United States and other countries additionally calls for links to
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23 376 community and social service organization to support patients during quarantine or self-isolation.
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25 377 Community partnerships with non-government organizations (NGOs) and faith-based
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27 378 organizations for patient support are foundational to other infectious disease programs such as
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29 379 tuberculosis and HIV and have shown to be beneficial in pandemic influenza preparedness
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31 380 (6,38–40). As many LMICs rely on community health workers, community organizations and
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33 381 NGOs for routine service delivery, this presents an opportunity to scale up the available resource
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35 382 pool for coordinated and comprehensive primary care. To support such initiatives, there is a need
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37 383 for inclusion of guidance on best practices for establishing flexible organizational models which
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39 384 bridge traditionally separate sectors. This guidance must provide recommendations that are
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41 385 supported by financial and training resources to provide coordinated and quality care, while
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43 386 ensuring fair and safe work for those in these roles.
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51 388 Underpinning these efforts and opportunities, however, is the critical worldwide shortage of
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53 389 medical products, including PPE and COVID-19 testing kits, which poses a direct risk to
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healthcare workers, community organization support workers, patients and their families (41,42). Findings from our review show guidelines clearly report the need for primary care workers to use PPE in order to provide safe and quality care for patients with COVID-19, however the scale of the pandemic is placing unprecedented demands on these resources. As our findings show, health systems globally are scaling up their health workforce and coverage through re-training of non-practicing health workers or partnerships with private providers and community organizations. This capacity will be directly threatened by the ongoing shortage of PPE and medical supplies, given not only the requirement of PPE for safe working conditions but also that many providers have stated they will not work without adequate PPE. Further, many primary care settings lack the necessary procurement linkages to ensure an ongoing supply of PPE and resources (43–45). Without significant investment and support of mass production of PPE, and complementary supply chain support to ensure distribution, these shortages pose a serious threat to our ability to protect healthcare workers while safely providing comprehensive services to persons seeking care for COVID-19. There is a pressing need to provide guidance on supply chain management and business continuity recommendations to ensure what UK NHS guidelines refer to as ‘practice resilience’ in primary care.

The pandemic has exposed weaknesses in health systems worldwide, and countries are using guidelines to communicate important response measures to front line workers. As health systems implement strategies, reconfigure models of care and pivot towards technology, there is also an urgent need for research on optimal configurations of primary care services for resilient response.

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Limitations

Given the lack of published literature to date on primary care guidelines or interventions for COVID-19 and the speed at which information is changing as experts adjust to evolving knowledge, this review relied on grey literature. A further limitation is our analysis only includes guidelines published in English or Chinese language, thus we miss key regions. However, we did search for English guidelines in all WHO regions beginning with countries with the highest reported cases.

CONCLUSION

Primary care is central to providing quality care for the usual common infections and now also for COVID-19, while also undertaking important public health functions. Appropriate, evidence-based, guidelines play a key role in ensuring that quality of care is maintained, particularly during pandemics which place enormous pressure on health care systems globally. Current national guidelines addressing primary care for COVID-19 demonstrate a focus on providing infection control and minimizing the risk of spread in primary care practices while supporting the use of new technology and coordinated partnerships. However, to ensure primary care practice resilience and ensure quality of care is upheld, guidelines must offer recommendations on supply chain management, coordination and business continuity, supported by adequate resources and robust research into the optimal configuration of services.

Contributorship Statement:

VH designed the search strategy with input from XW. VH, ZZ and RZ carried out the literature searches and screening and discussed discrepancies with XW. VH, ZZ and RZ carried out

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5 437 CZ and RU.
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10 439 **Competing Interest Statement:**
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12 440 All authors have completed the Unified Competing Interest form (available on request from the
13
14 441 corresponding author) and declare: no support from any organisation for the submitted work; no
15
16 442 financial relationships with any organisations that might have an interest in the submitted work
17
18 443 in the previous three years, no other relationships or activities that could appear to have
19
20 444 influenced the submitted work.
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33 449

34
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36

37 451 All data relevant to the study are included in the article or uploaded as supplementary
38
39 452 information.
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42 453

43 454 **REFERENCES**
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Table 2: Overview of the study documents

Country	Source	Date Pub.	Title
Australia	Communicable Disease Network	24-Apr-20	Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units v. 2.7
Canada	Government of Canada	19-Apr-20	Coronavirus disease (COVID-19): For health professionals
Canada	Government of Canada	16-Apr-20	COVID-19 Pandemic Guidance for the Health Care Sector
China	National Health Commission	07-Mar-20	Implementation plan for COVID-19 prevention and control by the National Health Commission (Version 6)
China	National Health Commission	04-Mar-20	Guidelines for the Diagnosis and Treatment of COVID-19 by the National Health Commission (Trial Version 7)
Ethiopia	Federal Ministry of Health	01-Apr-20	National Comprehensive COVID19 Management Handbook First Edition
India	Government of India Ministry of Health & Family Welfare Directorate General of Health Services	01-Apr-20	COVID-19 Book of Five Response and Containment Measures for ANM, ASHA, AWW
Ireland	Department of Health Ireland	03-Apr-20	V3.0 Preliminary Guidance on Minimising Risk of Transmission of Respiratory Virus in GP Practice
Malaysia	Ministry of Health Malaysia	24-Mar-20	Screening and Triaging
Malaysia	Ministry of Health Malaysia	24-Mar-20	Management of PUI as Outpatients
New Zealand	Ministry of Health New Zealand	08-Apr-20	Updated advice for health professionals: novel coronavirus (COVID-19)
New Zealand	Ministry of Health New Zealand	10-Apr-20	COVID-19: Primary care quick reference guide
Nigeria	Nigeria Centre for Disease Control	14-Mar-20	National Interim Guidelines for Clinical Management of COVID 19
Nigeria	Nigeria Centre for Disease Control	29-Feb-20	Infection Prevention and Control: Recommendations during health care when COVID-19 is suspected
Philippines	Republic of the Philippines Department of Health	11-Apr-20	Interim guidelines on health care provider networks during the COVID-19 pandemic

South Africa	Department of Health Republic of South Africa	27-Mar-20	Clinical management of suspected or confirmed COVID-19 disease
United Kingdom	NHS England	06-Apr-20	Guidance and standard operating procedures: General practice in the context of coronavirus (COVID-19) Version 2.1
United States	Centers for Disease Control and Prevention	07-Apr-20	Outpatient and Ambulatory Care Settings: Responding to Community Transmission of COVID-19 in the United States

Table 3: Key study results

Country	Primary care specific	Clinical service delivery	Public health functions	Primary care facility operational level	Health system level
Australia	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Public Health Unit (PHU) staff contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners; response to a notification will normally be carried out in collaboration with the clinicians managing the case</p>	<p>Minimizing risk of spread: Patients presenting to GP, hospital ED, or pathology collection centre meets the suspect case definition, patient should immediately be given a surgical mask to put on, directed to a single room, if patient has severe symptoms suggestive of pneumonia they should be directed to a negative pressure room (if available); HCW should follow contact and droplet precautions, contact and airborne precautions when performing aerosol-generating procedures and for care of critically ill patients</p> <p>Access to medications: Not described</p> <p>Communications: PHU advised that on the same day</p>	<p>Integrated planning: Coordination between clinical settings, PHUs and central state or territory communicable diseases agency</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

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				as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify central state or territory communicable diseases agency	
				Operational continuity: Not described	
Canada	No	<p>Surge capacity: Describes the need for surge capacity planning for additional equipment and staff to meet demand and prevent burnout; includes strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlines overall health system risk management approach including scenario in which primary care services are "faced with an overwhelming volume of patients"</p> <p>Service maintenance: Telephone, web-based and other means of telecommunication technology should be used to provide assessment, triage and advice; continuing to provide services that are time sensitive such as contraception, abortion, testing for sexually transmitted infections and selected immunizations and tracking deferred services for follow up when appropriate</p>	<p>Effective surveillance: Linkages with public health will help ensure that health care providers stay informed of local surveillance information and relevant public health guidance, activities, and initiatives</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Not described</p> <p>Access to medications: Implementing a system for prescription renewal without an office or clinic visit; being flexible in allowing people to stock up on opioid agonist treatments and medication to manage chronic pain; information on supply chain issues management and recommended prevention and mitigation strategies</p> <p>Communications: Telephone, web-based and other means of telecommunications technology to ensure ongoing service delivery; calls for development of on-line tools for self-assessment and self-monitoring to be developed in different languages</p> <p>Operational continuity: Describes guidance for ensuring appropriate staffing</p>	<p>Integrated planning: The coordination of services between all levels of government, across the continuum of care within a health region, and within and across jurisdictions, is integral to an effective and efficient response; Coordination with other components of the pandemic response (e.g., surveillance, laboratory, public health measures) are crucial for optimal health care system functioning</p> <p>Appropriate legislation: Section on the legal considerations that may arise during the provision of COVID-19 healthcare and denotes action for federal, provincial/territorial governments as well as regulatory authorities and healthcare organizations to support the pandemic response</p> <p>Financing mechanisms: New fee codes for virtual consultations and telephone prescribing</p>

				and encourages organizations to work collaboratively to relocate staff from usual roles and settings based on skills and need as well as outlines supports for healthcare workers and the reciprocal obligations organizations have to their workers	
Canada	No	<p>Surge capacity: Preparing for a surge in patients with respiratory infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>Minimizing risk of spread: Offers infection prevention and control guidance and primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p>	<p>Integrated planning: Engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do not require employees to have a healthcare providers note before return to work, consider staff screening, make contingency plans for absenteeism including extending hours, cross-training current employees or hiring temporary employees	
China	No	Surge capacity: Asked the designated hospitals to prepare necessary staff, medicines, devices and PPEs. These resources are prioritised for the designated hospitals. Conduct technical trainings of COVID-19 for health care staff in all level of health facilities Service maintenance: Not described	Effective surveillance: Using the existing national surveillance network to improve etiology surveillance. Regulating the standard procedures for COVID-19 case reporting, updating and correction. Regulating the standard procedures for specimen collection, transportation, storage for COVID-19 test. Technical guide for COVID-19 lab test is ready for use Control measures: Monitoring works will be led by health authorities of county level and cooperated with relevant organizations and departments. Guides on case investigation and close contact management are	Minimizing risk of spread: Emphasize infection control in health facilities based on existing regulations. Improve disinfection at home, in isolation wards, transportation, medical observation places, and improve personal protection among staff involved in epidemiological investigation, case transportation, medical observation, burial, disinfection, specimen collection and lab works. Specific guides for disinfection in specific places and personal protection are ready for use Access to medications: Not described Communications: Use of telecommunications to	Integrated planning: Mobilizing different organizations to improve case finding including all level of health facilities, primary level government organizations, employers, and monitoring of close contact. Improve the data sharing among different departments through regular meetings to discuss situation and trend of COVID-19 Appropriate legislation: Grading the level of risk for every county according to existing laws and regulations on infectious disease and public health emergency and implement different strategies according to the risk level Financing mechanisms: Ask the local government to commit funding and materials for

			ready from the national CDC.	coordinate amongst health facilities Operational continuity: Not reported	COVID-19 prevention and control
China	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: If COVID-19 suspected a case report is submitted through the internet to the CDC within 2 hours after initial suspicion and specimens should be collected for COVID-19 nucleic acid test Control measures: Not described	Minimizing risk of spread: Not described Access to medications: Not described Communications: Not described Operational continuity: Not described	Integrated planning: Patients presenting to doctors with symptoms of COVID-19 should be transferred to a predesignated hospital using secured dedicated transportation Appropriate legislation: Not described Financing mechanisms: Not described
Ethiopia	No	Surge capacity: Develop staffing plan to allow for expanded service hours when needed Service maintenance: Determine if outpatient locations and services should remain open if the threat is too great to staff and patients; Develop a process to limit/cancel non-essential visits; Develop referral/deferral plans for patients that do not need acute care	Effective surveillance: Rumour investigation and verification process may initiate from health facilities (governmental and non-governmental) by calling a dedicated number Control measures: Triage to be conducted at sick patients first point of contact with health system	Minimizing risk of spread: Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies, details of these not described Access to medications: Develop a plan to expedite medication refills, details of plan not described Communications: Develop a process for screening and triage of phone and email requests for care to limit office visits to those that require an in-person provider evaluation, details of these not described	Integrated planning: Not described Appropriate legislation: Not described Financing mechanisms: Not described

				Operational continuity: Develop staffing plan to allow for expanded service hours when needed, details of these not described	
India	Yes	Surge capacity: Describes offloading of awareness and education tasks by recommending that HCWs Seek the support of local influencers to support community awareness campaigns, identify high risk groups and share preventive measures and encourage representative from these groups to keep communicating to others; divide village into smaller groups with 'group leaders' and keep contact details for emergency support Service maintenance: Not described	Effective surveillance: Gather accurate information from the person, gather accurate information from the person: their name, date of birth, travel history, list of symptoms, record and communicate as per the surveillance format. Write the information clearly Control measures: ANM to support DSO/MO in contact tracing and reporting and feedback; ANM with help of ASHA, CHV and ICDS-AWW to support DSO/MO implement home quarantine, home care and supportive services; address psychosocial care	Minimizing risk of spread: When going to the field, carry a sanitizer/soap for hand washing, carry masks and extra masks if required, avoid touching your face, avoid touching high touch points (door bells, knobs, support rails) Access to medications: Not described Communications: ANM, AWW and ASHA to provide information to communities re:COVID-19 as well as continuing their routine primary care duties, communicate with District Surveillance Officer, Medical Officer; State Helpline Number; Ministry of Health & Family Welfare, Government of India 24x7 helpline Operational continuity: Not described	Integrated planning: Create a supportive environment by talking to local influencers, planning community support for high risk groups, developing community networks for support, help develop community household emergency contact lists Appropriate legislation: Not described Financing mechanisms: Not described
Ireland	Yes	Surge capacity: Not described Service maintenance: Remote consultations	Effective surveillance: Not described Control measures: Initial assessment and triage over	Minimizing risk of spread: For symptomatic patients to be seen in practice, try to see them in succession during specific hours; minimize their time spent in the practice	Integrated planning: Not described Appropriate legislation: Not described

			telephone to determine if they should be seen in practice or sent to a COVID-19 testing facility or COVID-19 assessment hub; suspend 'walk-in' appointments and require telephone screening; place signs at entrance	<p>environment and separate from other patients; patients with respiratory symptoms should be offered a mask; hand hygiene, not touching face, PPE guidance for staff, physical distancing of 1 to 2m between staff and patients and between patients</p> <p>Access to medications: Not described</p> <p>Communications: GPs should take all practical measures to assess and manage patients with symptoms of infection remotely using telephone and other remote communication including consideration of using video links through mobile phones/tablet/computer where practical</p> <p>Operational continuity: Not described</p>	<p>Financing mechanisms: Not described</p>
Malaysia	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: If PUI, take patient identifiers and notify the district health office</p> <p>Control measures: Provide good visual signages in all relevant languages; provide active screening; if PUI place patient in pre-designated waiting area; patient they can use own</p>	<p>Minimizing risk of spread: Disinfect waiting area after patient leaves</p> <p>Access to medications: Not described</p> <p>Communications: Notify the district health office of PUI sent for further investigation</p> <p>Operational continuity:</p>	<p>Integrated planning: Notify the district health office of PUI sent for further investigation</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

			transport to nearest screening hospital or contact the onward referral site for transport arrangement	Not described	
Malaysia	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Not described Control measures: Screening and triage of person under investigation	Minimizing risk of spread: A special area should be set up for COVID-19 to which PUI can be directly assessed and managed by a dedicated team where possible; adhere to infection, prevention and control guidelines in Annex 7 and use PPE Access to medications: Not described Communications: Consult with physician-on-call of screening hospital Operational continuity: Not described	Integrated planning: Consult with physician-on-call of screening hospital and determine whether further review is needed or whether PUI requires admission to admitting hospital; PUI from GP or private hospital to be reassessed by screening hospital, screening hospital will inform and coordinate referral to admitting hospital if necessary Appropriate legislation: Not described Financing mechanisms: Not described
New Zealand	Yes	Surge capacity: Not described Service maintenance: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Effective surveillance: Not described Control measures: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Minimizing risk of spread: Frequent handwashing, avoiding touching face, cough etiquette, adherence to standard infection prevention and control practices in primary health care; PPE for patient and staff who will be in contact with the patient Access to medications: Not described Communications: Not described Operational continuity:	Integrated planning: Coordination with District Health Boards Appropriate legislation: Not described Financing mechanisms: Not described

				Not described	
New Zealand	Yes	<p>Surge capacity: Not described</p> <p>Service maintenance: Patients with suspected, probable or confirmed COVID-19 infection, or those under investigation, should be managed medically according to their symptoms and clinical state. They do not need to be hospitalised unless clinically indicated and their home care situation is suitable. No description of measures of continuation of ongoing routine care</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: PPE for patient and staff who will be in contact with the patient for more than 15 minutes and within 2 metres; dedicated room for patient; general cleaning of the room following patient transfer</p> <p>Access to medications: Not described</p> <p>Communications: Primary care is responsible for informing patients and providing advice if test result is negative. Public health units will inform patients and provide information if the result is positive.</p> <p>Operational continuity: Not described</p>	<p>Integrated planning: Coordination with District Health Boards</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
Nigeria	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Maintain Infection Prevention and Control procedures, identify staff who will be involved in transfer of suspected case to designated treatment centre, prepare documents and assemble personal belongings</p> <p>Access to medications: Not described</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				Communications: On identification of a suspect cases, the point of identification should notify the State Epidemiologist immediately through the quickest possible means Operational continuity: Not described	
Nigeria	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Maintain a screening register Control measures: Set up a triage station and use triage questions based on case definition to obtain history; passive screening through signs; if patient is symptomatic isolate in designated area; while in isolation provide education and notify the Local Government Area Disease Surveillance and Notification Officer (DSNO), State DSNO or State Epidemiologist	Minimizing risk of spread: Use of PPE including gloves, medical/surgical mask and gown; restricting staff access to isolation rooms; consider bundling activities to minimize room entry; ensure appropriate ventilation; Provide physical barriers or partitions to guide patients through triage areas; ensure appropriate environmental infection control Access to medications: Not described Communications: Toll-free number to notify a suspected case for further testing and investigation Operational continuity: Not described	Integrated planning: Not described Appropriate legislation: Not described Financing mechanisms: Not described
Philippines	No	Surge capacity: Outlines that health care utilization is expected to rise; outlines systems-wide surge capacity plans through	Effective surveillance: Not described.	Minimizing risk of spread: All health facilities shall endeavour to provide telemedicine services for	Integrated planning: Coordination between Department of Health Centers for Health Development and local

		<p>health care provider networks (HCPN) to optimize the COVID-19 model of care and strengthen the health system response - calls on local government units to organize HCPNs across public and private sector</p> <p>Service maintenance: Not described; role of Rural Health Units (RHU), Urban Health Centers (UHC), and medical outpatient clinics as the main navigators/first contact in the HCPN and determine the appropriate facility for its patients</p>	<p>Control measures: Phone triage, HCPN to designate a primary care facility within their catchment as a designated site for triaging patients either to temporary facilities for those with mild symptoms or to COVID-19 referral hospitals for those with severe symptoms or comorbidities</p>	<p>patients within their HCPN to promote physical distancing whenever possible</p> <p>Access to medications: Not described</p> <p>Communications: Phone triage via telemedicine if available</p> <p>Operational continuity: Province- and city-wide HCPNs shall ensure dedicated Human Resources for Health (HRH) for triaging, contact tracing and facility-based management of patients based on the most updated DOH guidelines and protocols</p>	<p>government units to form province- or city-wide health systems to respond to a manage both non-COVID-19 and COVID-19 patients</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
South Africa	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Including screening questionnaire as part of standard triage at healthcare facilities</p>	<p>Minimizing risk of spread: Suspected cases to be given a surgical mask and directed to a separate area or isolation room and 1-2m distance should be kept between other patients, limit the movement of the patient and ensure a dedicated bathroom</p> <p>Access to medications: Not described</p> <p>Communications: Routine emergency department triage systems may be used</p> <p>Operational continuity: Not described</p>	<p>Integrated planning: Routine emergency department triage systems may be used for arranging transfer of patients for testing</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

Sri Lanka	Yes	<p>Surge capacity: Not described</p> <p>Service maintenance: Remote consultations for ongoing care, as well as for triage of suspected COVID-19 patients; discusses mental and psychological well-being and offers a conversation guide for providers</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Phone triage, notice on primary care facilities to make patients aware that consultations will occur over the phone; passive screening through notices outside clinic; response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and call an ambulance to convey the patients nearest COVID acute care isolation hospital, follow up through the public health team and inform the hospital</p>	<p>Minimizing risk of spread: Remote consultations for all with aim to triage COVID-19 suspected patients with minimum exposure to healthcare staff and other patients; in cases where in-person examination is needed, patients suspected of COVID-19 to wait in a separate waiting area; staff not to use public transport; guidance on proper attire and personal grooming for PPE use; guidance on the need for and use of PPE; guidance on hand hygiene; guidance on physical distancing within clinics and creation of separate waiting area; prioritizing patients with respiratory symptoms; removal of toys, magazines, pens and shared items in waiting rooms; guidance on facility disinfection; guidance on personal disinfection</p> <p>Access to medications: Not described</p> <p>Communications: Phone triage; communication with public health and referral hospitals</p> <p>Operational continuity: Guidelines strongly recommend that primary care physicians continue their</p>	<p>Integrated planning: Response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and admit to nearest COVID acute care isolation hospital, follow up through the public health team and inform the hospital</p> <p>Appropriate legislation: If any patient refuses to admit / home isolation, seek police/legal support in accordance with the Quarantine Law</p> <p>Financing mechanisms: Not described</p>
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				clinical practice if they can adhere to the guidelines	
United Kingdom	Yes	<p>Surge capacity: Local areas will need to consider, with their clinical commissioning group (CCG), the operating model that best suits their local context and arrangements; A key enabler will be ensuring that staff can access GP computer systems from locations other than their usual or base location</p> <p>Service maintenance: Remote consultations; dedicated home visiting services for shielded patients; access to urgent care and essential routine care should be maintained for all patients; document discusses mental health and psychological well being, advanced care planning, palliative care; COVID-19 care is not described</p>	<p>Effective surveillance: Not described - patient is triaged by NHS 111</p> <p>Control measures: Patients should be triaged remotely; patients with symptoms of COVID-19 directed to NHS 111; clear signage and communications to direct symptomatic patients</p>	<p>Minimizing risk of spread: Practices should work together to safely separate different patient cohorts: patients with symptoms of COVID-19; shielded patients; and the wider population; Staff should be allocated to either symptomatic patients or other patient groups; offer 2 models - zoning or practice designation to manage face to face appointments; PPE and clinical decontamination guidance</p> <p>Access to medications: Advise practices to not increase repeat prescriptions to minimize supply chain pressure; urgent request for practices that do not accept orders for repeat prescriptions from third parties to review this policy to support social distancing</p> <p>Communications: Remote consultations and video consultations; digital isolation notes for patients' employers; home visits; phone linkages</p> <p>Operational continuity: Section on 'practice resilience' to maximise clinical capacity and provide business</p>	<p>Integrated planning: Referral using NHS 111 for symptomatic patients; Reference to the Standard Operating Procedures for community pharmacy and community services (when published) may be helpful to ensure joined up working; Home visiting can be organised at network or place level to deliver care at home to shielded patients, and this will be needed in either model; provision of non-medical support through social prescribing link workers; link with Department for Work and Pensions to accept digital isolation notes; encouraged to engage with research programs</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				continuity resilience negotiated through regional bodies and commissioners	
United States	Yes	<p>Surge capacity: Preparing for a surge in patients with respiratory infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>Minimizing risk of spread: Offers infection prevention and control guidance and primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p> <p>Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do</p>	<p>Integrated planning: Engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				not require employees to have a healthcare providers note before return to work, consider staff screening, make contingency plans for absenteeism including extending hours, cross-training current employees or hiring temporary employees	
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For peer review only

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	N/A – rapid review identified
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3,4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	N/A
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	6
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	6
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6
Critical appraisal of individual	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe	N/A

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
sources of evidence§		the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	6
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	21,22
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	22
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	6-12
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	13
Limitations	20	Discuss the limitations of the scoping review process.	15
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	16
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Entered online as per journal specifications

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: 10.7326/M18-0850.

BMJ Open

National primary care responses to COVID-19: A rapid review of the literature

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Full Title:

National primary care responses to COVID-19: A rapid review of the literature

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ABSTRACT:

Objective: The aim of this review is to examine available national primary care guidelines for COVID-19 and to explore the ways in which these guidelines support primary care facilities in responding to the demands of the COVID-19 pandemic.

Design: Rapid review and narrative synthesis

Data Sources: PubMed, Embase and Google, as well as the websites of relevant national health departments were searched from January 1 2020, to April 24, 2020.

Eligibility Criteria: Documents included must be issued by a national health authority, must be specific to COVID-19 care, directed at a healthcare workers or managers and must refer to the role of primary care in the COVID-19 response.

Results: We identified 17 documents from 14 countries. An adapted framework on primary care challenges and responses to pandemic influenza framed our analysis. Guidelines generally reported on COVID-19 service delivery and mostly made specific recommendations for ensuring continued delivery of essential primary care services through telehealth or other virtual care modalities. Few offered guidance to support surveillance as a public health function. All offered guidance on implementing outbreak control measures, largely through flexible and coordinated organizational models with partners from various sectors. There was a lack of guidance to support supply chain management and practice resilience in primary care, and lack of personal protective equipment represents a serious threat to the provision of quality care during the pandemic.

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62 **Conclusions:** Current national primary care guidelines for COVID-19 provide guidance on

63 infection control and minimizing the risk of spread in primary care practices, while supporting

64 the use of new technology and coordinated partnerships. However, to ensure primary care

65 practice resilience and quality of care is upheld, guidelines must offer recommendations on

66 supply chain management and operational continuity, supported by adequate resources.

68 **ARTICLE SUMMARY: (Strengths and Limitations of this Study)**

- 69 • This is the first rapid review, to our knowledge, to examine national guidelines for
- 70 COVID-19 treatment and management in primary care.
- 71 • This review includes both English-language and Chinese literature, thus we may miss key
- 72 regions based on other languages.
- 73 • We have included guidelines from a diverse range of countries to compare global
- 74 approaches to COVID-19 guidelines for primary care.
- 75 • The review relies on grey literature to capture national guidelines as there is a lack of
- 76 academic literature on primary care guidelines for COVID-19.

78 **INTRODUCTION:**

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80 Primary care focuses on medical care and is the provision of integrated, accessible health care

81 services by clinicians who are accountable for addressing a large majority of personal health care

82 needs, developing a sustained partnership with patients, and practicing in the context of family

83 and community (1). In keeping with the commitments of the Declaration of Astana and of the

84 political declaration on Universal Health Coverage, primary care services, as a foundational and

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3 85 central element of robust health systems, are at risk of being overwhelmed by the current
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5 86 coronavirus disease 2019 (COVID-19) pandemic (2–4). Primary care settings are, in many
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7 87 places, patients’ closest and first point of contact with the health system. In the current pandemic,
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10 88 we have seen tremendous pressure placed on health care systems. Countries worldwide have
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12 89 responded to these demands by rapidly building up dedicated tertiary care facilities and other
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14 90 treatment centres. However, some health systems may not be equipped to quickly increase
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16 91 hospital and health workforce capacity. Thus, in both high income and low-and-middle income
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18 92 countries (LMICs) primary care is poised to become increasingly crucial in the COVID-19
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20 93 response as secondary and tertiary hospitals are strained by patients requiring intensive
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22 94 management (5). Primary care is key to well-functioning health systems, and has played an
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24 95 important role in managing patients and implementing pandemic policies during the
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26 96 2009/A/H1N1 pandemic (6). Indeed, the ‘primary care safety net’ has been described as key to
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28 97 treating underserved populations and to providing surge capacity in such circumstances (7).
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35 99 As the onset of COVID-19 is hallmarked by mild to moderate symptoms during which
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37 100 individuals are infectious, primary care has a crucial role in the prevention, triage, diagnosis and
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39 101 management of patients in the community. Robust and comprehensive guidelines are needed to
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41 102 support primary care response during pandemics (8). Indeed, primary care has been previously
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43 103 identified as providing key public health functions including, health protection and promotion,
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45 104 disease prevention, community-based screening and testing surveillance and response, as well as
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47 105 emergency preparedness (9). However, current guidelines are heterogenous and span care
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49 106 provided in primary care, home care as well as isolation guidance. Given that the main benefit of
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51 107 guidelines is to improve quality of care received by patients, there is a need for rapid research
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and synthesis to inform guidelines creation that supports primary care providers in delivery quality care during the pandemic (10). The aim of this review is to examine available national primary care guidelines for COVID-19 and to explore the ways in which these guidelines support primary care facilities in responding to the demands of the COVID-19 pandemic.

METHODS

In light of the rapidly evolving situation, policy makers require evidence synthesis to produce robust guidance for primary care providers. The WHO recommends the use of rapid reviews to provide such evidence (11). We conducted a rapid document review with a qualitative analytical approach to allow for narrative synthesis of the data (12).

Our review is informed by an adapted framework outlining primary care challenges and responses to pandemic influenza (Table 1) (13). The framework outlines four key domains: clinical service delivery, public health functions of primary care facilities, operational level functions at the primary care facility, and the health systems level factors – all of which may act as barriers or facilitators to care provision.

Table 1: Adapted framework of primary care challenges and response to pandemic influenza.

Domain of Practice	Challenges during a pandemic	Response to be addressed
Clinical service delivery	Surge in demand for primary care services	Ways to enhance surge capacity
	Sustaining other urgent or essential primary care services	Maintenance of urgent and essential primary care clinical services

Public health functions	Effective surveillance	Contributing data and specimens for clinical and laboratory-based surveillance
	Implementing control measures	Assisting public health units with contact tracing, triage and monitoring people in isolation or quarantine
Primary care facility operational level	Minimizing the risk of COVID-19 spread in the practice setting	Structuring clinical facilities and stockpiling personal protective equipment to enable effective infection control
	Access to medications	Reliable delivery of medications and essential equipment to the practice
	Ongoing communications with patients, public health and the health system	Strengthening capacity of communication systems
	Ensuring operational continuity	Organizational arrangements to sustain efficient and effective services
Health system level	Overall organization of the health system	Integrated planning across the health system, e.g. with other primary care facilities, ambulatory care services, public health units and hospitals
		Appropriate legislation, e.g. to address professional accreditation, indemnity and ethical concerns
		Financing mechanisms for general practice

Adapted from Patel MS, Phillips CB, Pearce C, Kljakovic M, Dugdale P, Glasgow N. General Practice and Pandemic Influenza: A Framework for Planning and Comparison of Plans in Five Countries. PLOS ONE. 2008 May 28;3(5):e2269

Information Sources and Search

To identify relevant documents we searched PubMed, Embase and Google, as well as the websites of relevant national health departments, such as the ministries of health or public health, or centres for disease control. We searched guidelines from January 1 2020, to April 24, 2020. We applied the following standard Boolean phrase during the searches: [‘COVID 19’ AND ‘guidelines’ AND ‘ministry of health’ OR ‘centres for disease control’ AND country name]. We also searched references of the selected relevant policy documents for additional related

information. We consider guidelines to be documents issued by national authorities within countries that communicate the intention of that national authority as to how COVID-19 should be diagnosed, treated and managed in a primary care setting. We attempted to ensure global representation by searching for countries with publicly available English or Chinese-language documentation from across World Health Organization regional groups. We began with countries that had experienced community transmission of COVID-19 before our search date, with the assumption that these countries would have primary care guidance available. If not available, we then examined countries with COVID-19 cases identified before our search date, to identify English or Chinese language national guidance on primary care.

Inclusion Criteria

To be included in our review, the document must be issued by a national health authority (Ministry of Health, National Centre for Disease Control, etc.), it must be specific to COVID-19 care, directed at healthcare workers or managers and must refer to the role of primary care in the COVID-19 response. If the documents were published in series, the most recent version was considered. We chose countries from each of the six WHO regions in order to aim for geographic diversity. Countries were chosen based on their number of reported cases, with oversampling of countries with higher reported case numbers, as well as the availability of English or Chinese language documents.

Study selection and data charting

Two reviewers screened titles, abstracts and full text against the inclusion criteria. This process followed the PRISMA four stage process (identification, screening, eligibility, and final

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inclusion). Disagreements were resolved through discussion between the two reviewers. At the time of study selection, no national guidelines meeting our criteria were available through PubMed or Embase, thus our review relies on grey literature from national sources available in English or Chinese language. One reviewer charted data from eligible guidance using a standardised Microsoft Excel form developed for this study based on our conceptual framework, this was reviewed by another reviewer.

Analysis procedures

The data were analysed using elements of both content analysis and the Framework method using the conceptual framework above to guide analysis (14,15). We conducted a descriptive summary of the characteristics of included documents. We provide a narrative synthesis of the ways in which selected countries are addressing the domains of primary care practice as per our framework. 73

Patient and public involvement

We did not directly involve patients or the public in the conceptualization of this study.

RESULTS

We identified 17 documents from the grey literature which comprised national COVID-19 guidelines. Of these 11 were general national guidelines for COVID-19 which referred to primary care within the text, five were specific to primary care and three had primary care as a specific sub-section. Figure 1 offers a PRISMA diagram of our results. Supplementary Material 1 provides an overview of these documents. At the time of the study search, documents meeting our study criteria were found from China, Malaysia, the Philippines, New Zealand, Australia,

184 Canada, the United States, the United Kingdom (UK), Ireland, Ethiopia, Nigeria, South Africa,
185 Sri Lanka and India. Supplementary Material 2 provides a summary of our results.

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For peer review only

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[Figure 1. PRISMA Diagram about here]

In Table 2 we present an overview of the key framework domains and their corresponding response indicators for each country. Our results show that all national primary care guidelines included information on control measures, ways to minimize risk of spread and communication mechanisms. The majority of national guidelines also referred to integrated planning mechanisms for primary care. Fewer national guidelines reported on aspects of clinical service delivery in primary care with only half of countries’ offering guidance on surge capacity. Only four of 14 countries’ guidance describing access to medication considerations, and fewer described legislative or financing considerations to support primary care. Only national guidance from Canada covered all domains.

Table 2. Primary care responses by country.

Domain	Pandemic response	CHN	MYS	PHL	NZL	AUS	CAN	GBR	USA	IRL	ETH	NGA	ZAF	LKA	IND
Clinical service delivery	Surge capacity	X		X			X	X	X		X				X
	Service maintenance			X	X		X	X	X	X	X			X	
Public health functions	Surveillance	X	X				X	X			X	X			X
	Control measures	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operations at the primary care facility	Minimizing spread	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Access to medications						X	X	X		X				
	Communications	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Continuity			X			X	X	X		X			X	
Health systems	Integrated planning	X	X	X	X	X	X	X	X				X	X	X
	Legislation	X					X							X	
	Financing	X					X								

CHN = China, MYS = Malaysia, PHL = the Philippines, NZL = New Zealand, AUS = Australia, CAN = Canada, USA = the United States, GBR = the United Kingdom (UK), IRL = Ireland, ETH = Ethiopia, NGA = Nigeria, ZAF = South Africa, LKA = Sri Lanka and IND= India

Clinical Service Delivery

Guidelines from the Philippines, China, Canada, the United States, the UK and Ethiopia described recommendations to manage surge capacity in primary care facilities during the COVID-19 pandemic. Guidelines from the Philippines and the UK provided guidance on the care of common (eg respiratory) infectious diseases in the context of COVID-19, and described the reorganizing of existing primary care networks to ensure collective capacity within the health system. The Philippines guidelines called on local government units to organize existing health care provider networks across the public and private sector to optimize the COVID-19 model of care (16). The UK guidance asked practices to work with their Clinical Commissioning group to create regional models of care that suit their context (17). Guidance from China describes prioritizing staff, medicines and PPE for designated township hospitals (the site of primary care in China), but also capacity building the workforce system-wide through technical trainings to ensure surges can be effectively managed (18,19). The United States guidance highlights that planning for a surge in patients with respiratory infection should be a primary goal of health facilities (20). However, the document did not outline recommendations for action beyond ensuring adequate staffing. This is similar to guidance from Ethiopia which encouraged providers to allow for expanded service hours when needed to ensure access to care during surges (21). Canadian guidance expanded upon this and described the need for surge capacity planning to ensure there is additional equipment and staff to meet demand and prevent burnout. The guidance included strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlined an overall health system risk management approach including the scenario in which primary care services are "faced with an overwhelming volume of patients" (22).

Few jurisdictions in our review recommended care for persons with COVID-19 in the community (primary care supported home care) as an overarching national approach and thus, few guidelines described the ways in which primary care service delivery should encompass the care of individuals with COVID-19. The United States guidance described how primary care providers should arrange for a health care worker to check in with patients under home care for COVID-19 through telephone or patient portals (20). New Zealand guidance described how the provision of active-monitoring of non-hospitalized probable and confirmed cases is the responsibility of the public health unit unless there has been clear delegation to another provider (23).

Guidance from Canada, Ireland, the UK, Sri Lanka and Ethiopia described the maintenance of urgent and essential primary care clinical services. The majority of these recommended the use of remote consultations offered via telehealth (17,21,22,24). Guidance from Canada also outlined the need to ensure continuity of time-sensitive essential services such as contraception, abortion, testing for sexually transmitted infections, and selected immunizations, as well as the need for providers to track deferred services for later follow up (22). Guidelines from Ethiopia similarly called for referral or deferral plans for patients that do not need acute care (21). Guidance from the UK described the potential to use dedicated home visits for those patients at high risk for severe COVID-19 infection (17). The guidance also described the need for mental health and psychological well-being services in primary care, as well as advanced care planning and palliative care services.

Public Health Functions

Guidelines from China, Canada, Malaysia, Ethiopia, Nigeria and India offered information on the ways in which primary care facilities can support surveillance activities (19,21,22,25–28). Surveillance activities, as per our framework definition, may be broadly categorized as the provision of biologic samples or data to public health units as part of larger active surveillance activities. No guidance in our selected documents described the collection of biologic samples. Guidance from China, Malaysia, Ethiopia and India described a process whereby primary care would collect information of suspected individuals and transmit this information to public health teams for further investigation (18,21,25,27). Guidance from Nigeria recommended that providers should maintain a screening register of patients (26). Both Canadian and Australian guidelines highlighted that local public health units are responsible for reporting COVID-19 cases to provincial, territorial or state public health authorities (29,30). Guidance from India described the role of community health workers who have been mobilized to support contact tracing (27).

Most guidance outlined steps towards the implementation of control measures within primary care facilities. Guidance from the Philippines, Sri Lanka, the United States, Ireland, and the UK specifically described a process which included phone-based triage (16,17,20,24,31). In the Philippines, Sri Lanka, Ireland and the UK patients reporting symptoms of COVID-19 over the phone would be triaged to designated COVID-19 assessment or treatment sites for further investigation (16,17,31). In the UK (NHS 111) and United States, patients would be triaged/ diagnosed over the phone to determine whether they can be presumed to be COVID-19 positive and advised to remain at home and self-monitor (17). Guidance from Canada, Malaysia, South

Africa, Ethiopia described the role of primary care facilities in screening, triage and referral (29,22,25,32,21). Guidance from the UK, Ireland, the United States, China, Malaysia and Nigeria also specifically highlighted the need for patient screening from first contact at the clinic through observation of symptoms by all clinic staff and receptionist screening through questions (17,19,20,25,26,31).

Primary Care Facility Operational Level

At the primary care facility level, guidance from all included countries offered recommendations for minimizing the spread of infection within primary care facilities through strategies to minimize contact, rigorous infection prevention and control procedures and the use of personal protective equipment (PPE). Guidance from the Philippines and Sri Lanka recommended telemedicine to minimize contact, while guidance from Ireland suggested offering dedicated clinic hours to see symptomatic patients and to schedule these appointments in succession (16,24,31). Nigeria similarly recommended that health care facilities bundle care activities to minimize exposure to symptomatic patients (33). Guidance from Canada, the United States, Ireland, the UK, Australia, Sri Lanka, Malaysia, South Africa and Nigeria described the need to ensure physical distancing within primary care facilities and the need to set up dedicated areas for patients with symptoms of COVID-19 (17,20,22,24,25,30–33). Guidance from the United States, Ireland, New Zealand, Australia, Sri Lanka and South Africa specifically recommend providing symptomatic patients with a disposable surgical mask upon entry to the clinic. All guidance reported on the need for staff PPE complemented with frequent hand washing and avoiding touching one's face. Guidance from Sri Lanka described clothing choices (wearing short sleeves) and personal grooming measures (keeping clean shaven and tying hair back) to

support the use of PPE and appropriate hygiene (24). Canadian guidelines provided advice on the reprocessing of N-95 respirators by staff (29).

Guidance from Canada, the United States, the UK and Ethiopia described measures to ensure that patients had uninterrupted access to medications (17,20–22). Guidance from Ethiopia recommended facilities develop plans to expedite medication refills (21). Guidance from the United States encouraged providers to reach out to high risk patients and ensure they have sufficient medication (20). Guidance from the UK advised practices not to increase repeat prescriptions so as to reduce supply chain pressure to deliver multiple months’ worth of medications in a short time span (17). Further, the guidance made an urgent request for practices to change their policies and ensure they accept repeat prescription orders online through the practice website, to support population-level physical distancing policies. Guidance from Canada encourages practices to implement a system for prescription renewal that does not require in person visits, as well as to be flexible in allowing patients to stock up on opioid agonist treatments and medication to manage chronic pain (22). Canadian guidance was unique in offering information on supply chain issues and management, as well as prevention and mitigation strategies.

All guidance reported methods of telephone communication with the wider health system either as part of telephone triage or referral to onward tertiary care. Beyond the health system, guidance from the UK described an online system linking the NHS and the Department for Work and Pensions to ensure acceptance of digital isolation (‘sick’) notes (17). Guidance from China, Canada, the United States, Ireland and the UK specifically described the use of

telecommunications technology to ensure ongoing service delivery (17,19,20,22,31). Guidance from China reported the use of smart-phone apps to connect with patients, as well as to ensure communication between the health system and community groups mobilized to respond to the pandemic (19). Guidance from the UK (NHS Covid-19) includes online guidance and self-assessment. While Canada calls for the development of on-line tools for self-assessment and self-monitoring in different languages (22).

Guidance from the Philippines, China, Canada, the United States, the UK and Ethiopia reported on strategies to ensure operational continuity of primary care facilities. Guidelines from the Philippines and Ethiopia recommended the creation of staffing plans to address potential human resource shortages (16,21). Guidelines from the United States encourage individual practices to plan for absenteeism through cross-training of current employees, extending hours, or hiring temporary employees (20). Guidance from Canada, China and the UK encourage cross-organizational collaboration to maximise clinical capacity through relocation of staff or services based on skills, need and available training (17,19,22).

Health System Level

All guidance referred to some form of integrated planning across the health system, most commonly this was through the triage, notification or referral processes. Guidance from the Philippines described coordination between the Department of Health and local government units to form province- or city-wide health systems incorporating private and public sector care in order to respond to SARS-CoV-2 (16). Guidance from the UK encouraged primary care practices to engage with research programs, work with community pharmacy and community

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services, and to provide non-medical support through collaboration with social prescribing link workers, who provide connections to community groups and statutory services for practical and emotional support (17,34). Guidance from China reported on the need to mobilize different organizations to improve case finding including all level of healthcare facilities, local governments, community organizations and employers to support the pandemic response (19). This was facilitated by a call for improved data sharing among different departments through regular meetings and working groups. From a grassroots perspective, guidance from India encouraged community health workers to create a supportive local environment by talking to local influencers, planning community support for high risk groups, developing community networks for support, help develop community household emergency contact lists (27). In the United States, guidance encourages primary practices to engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods (20).

National guidelines from Sri Lanka, China and Canada described legislation (19,22,24). Guidance from Sri Lanka called for primary care providers to seek police or legal support in accordance with the Quarantine Law for patients who refused to be admitted to hospital or undertake home isolation (24). In the guidance from China this included an explanation of policies which grade each county based on level of risk of COVID-19 outbreak and tailoring interventions and controls according to the risk level (19). Guidelines from Canada included a section on the legal considerations that may arise during the provision of COVID-19 healthcare and denotes action for federal, provincial/territorial governments as well as regulatory authorities and healthcare organizations to support the pandemic response (22). From a financing

perspective, guidance from China asked local governments to commit funding and materials, such as PPE and medical supplies, towards COVID-19 prevention and control (19). The Canadian guidelines called for provinces and territories to establish new billing fee codes for virtual consultations and telephone prescribing (22).

DISCUSSION

The primary goal of clinical guidelines is to help improve quality of care (10). Our rapid review findings highlight strengths, opportunities and gaps in COVID-19 national guidelines for primary care published in early 2020. Strengths of available national guidelines include clear and robust guidance on control measures, minimizing the risk of spread and communication between primary care and other health system actors. Opportunities to support primary care facilities include the use of telehealth to support guidance on surge capacity, ensuring service maintenance and supporting integrated planning. To address gaps in national guidance, there is need for strengthened guidance on access to medication, ensuring operational continuity of primary care facilities and research on optimal configuration of primary care services for a resilient response. This review also underscores the need to ensure a safe working environment through appropriate PPE resource allocation.

Our review found that telehealth plays a key role in national guidelines for COVID-19 and offered a way to provide clinical service delivery and public health functions in primary care. Importantly, countries such as Canada have made clear in national guidance the financial mechanisms available to bill for primary care telehealth services (22). Others, such as Australia, have provided similar mechanisms, however, these are not explicitly included in national

guidelines (35). Telehealth has the potential to provide accessible, comprehensive and continuous care for both patients with COVID-19, and those requiring routine care for other health needs, including psychosocial well-being needs; however, caution is warranted in viewing technological solutions as a panacea to all patient groups given the known challenges to access in under-resourced settings and to under-served populations (36). Health systems will also face structural challenges to scaling and sustaining telehealth, as well as ensuring onward linkage to care, as demand outpaces capacity. For example, the telehealth network in Ontario, Canada experienced a day long shut down due to technical issues after media coverage on telehealth screening (37). In addition, many primary care clinics in LMICs may not have sufficient health information systems, internet connection, and online payment options to effectively operate telehealth. As models of telehealth are developed, they should be clearly communicated in national guidelines.

Our findings also show movement at the primary care facility level and the health system level towards flexible and coordinated organizational models to support service delivery and public health functions. Available guidelines require primary care to provide a range of COVID-19 services include screening and assessment, home care and discharge support, as well as attend to the ongoing routine care needs of patients. In some countries, primary care must also coordinate with testing centers or designated COVID-19 hospitals. To achieve these goals, guidelines report on establishing partnerships through existing or newly formed networks of primary care facilities and other health system actors, including both public and private sectors. While national guidelines from the Philippines specifically refer to partnerships with the private sector, there have been other examples of coordination with the private sector to strengthen health system

capacity for triage in primary care. Public Health Preparedness Clinics in Singapore and respiratory clinics in Australia, which actively involve private primary care practices in the COVID-19 response, are a promising model to build capacity for triage in primary care (38,39). Private care partnerships have previously proven promising in providing quality care for tuberculosis in LMICs (40, 41). These activities support and strengthen community-oriented primary care. In community-oriented primary care, primary clinical care for individuals and families is provided with special attention to continuity of care and includes a focus on the demographics and needs of the community as a whole in planning, delivering and evaluating care (42). However, coordinated and flexible organizational models will be challenged by pre-existing health system fragmentation. Countries will need to actively strengthen linkages between primary and secondary care to ensure that guideline recommendations can be consistently followed, even during surges.

National guidance from the United States and other countries additionally calls for links to community and social service organization to support patients during quarantine or self-isolation. Community partnerships with non-government organizations (NGOs) and faith-based organizations for patient support are foundational to other infectious disease programs such as tuberculosis and HIV and have shown to be beneficial in pandemic influenza preparedness (9,43–45). As many LMICs rely on community health workers, community organizations and NGOs for routine service delivery, this presents an opportunity to scale up the available resource pool for coordinated and comprehensive primary care. To support such initiatives, there is a need for inclusion of guidance on best practices for establishing flexible organizational models which bridge often poorly connected or separate sectors including health, social services, faith

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3 organizations and the private sector. This guidance must provide recommendations that are
4 supported by financial and training resources to provide coordinated and quality care, while
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6 ensuring fair and safe work for those in these roles.
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12 Underpinning these efforts and opportunities, however, is the critical worldwide shortage of
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14 medical products, including PPE and COVID-19 testing kits, which poses a direct risk to
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16 healthcare workers, community organization support workers, patients and their families (46,47).
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18 Findings from our review show guidelines clearly report the need for primary care workers to
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20 use PPE in order to provide safe and quality care for patients with COVID-19, however the scale
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22 of the pandemic is placing unprecedented demands on these resources. As our findings show,
23
24 health systems globally are scaling up their health workforce and coverage through re-training of
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26 non-practicing health workers or partnerships with private providers and community
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28 organizations. This capacity will be directly threatened by the ongoing shortage of PPE and
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30 medical supplies, given not only the requirement of PPE for safe working conditions but also that
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32 many providers have stated they will not work without adequate PPE. Further, many primary
33
34 care settings lack the necessary procurement linkages to ensure an ongoing supply of PPE and
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36 resources (48–50). Without significant investment and support of mass production of PPE, and
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38 complementary supply chain support to ensure distribution, these shortages pose a serious threat
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40 to our ability to protect healthcare workers while safely providing comprehensive services to
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42 persons seeking care for COVID-19. There is a pressing need to provide guidance on supply
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44 chain management and operational continuity recommendations to ensure what UK NHS
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46 guidelines refer to as ‘practice resilience’ in primary care.
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3 The pandemic has exposed weaknesses in health systems worldwide, and countries are using
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5 guidelines to communicate important response measures to front line workers. As health systems
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7 implement strategies, reconfigure models of care and pivot towards technology, there is also
8
9 an urgent need for research on optimal configurations of primary care services for resilient
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11 response.
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17 **Limitations**

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19 Given the lack of published literature to date on primary care guidelines or interventions for
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21 COVID-19 and the speed at which information is changing as experts adjust to evolving
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23 knowledge, this review relied on grey literature. Our study may be also limited by our choice of
24
25 framework analysis, which may have limited our ability to assess relative strengths and
26
27 weaknesses of national guidance. A further limitation is our analysis only includes guidelines
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29 published in English or Chinese language, thus we miss key regions. However, we did search for
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31 English guidelines in all WHO regions beginning with countries with the highest reported cases.
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38 **CONCLUSION**

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40 Primary care is central to providing quality care for the usual common infections and now also
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42 for COVID-19, while also undertaking important public health functions. Appropriate, evidence-
43
44 based, guidelines play a key role in ensuring that quality of care is maintained, particularly
45
46 during pandemics which place enormous pressure on health care systems globally. Current
47
48 national guidelines addressing primary care for COVID-19 demonstrate a focus on providing
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50 infection control and minimizing the risk of spread in primary care practices while supporting the
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52 use of new technology and coordinated partnerships. However, to ensure primary care practice
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resilience and quality of care is upheld, guidelines must offer recommendations on supply chain management, coordination and operational continuity, supported by adequate resources and robust research into the optimal configuration of services.

Contributorship Statement:

VH designed the search strategy with input from XW. VH, ZZ and RZ carried out the literature searches and screening and discussed discrepancies with XW. VH, ZZ and RZ carried out extraction. VH wrote the first draft of the review with input from XW, WD, LL, MK, KR, GZ, CZ and RU.

Competing Interest Statement:

All authors have completed the Unified Competing Interest form (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work.

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Data Sharing Statement:

All data relevant to the study are included in the article or uploaded as supplementary information.

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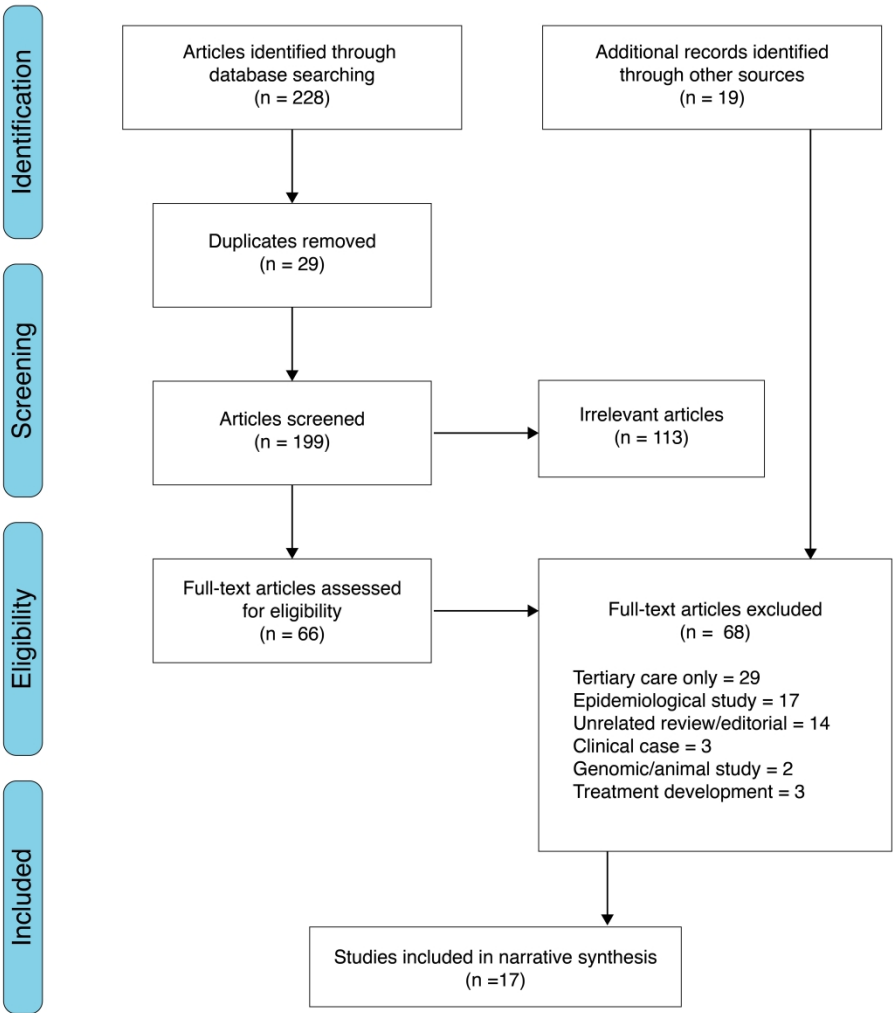


Figure 1
PRISMA Diagram

445x502mm (300 x 300 DPI)

Supplementary Material 1: Overview of the study documents

Country	Source	Date Pub.	Title
Australia	Communicable Disease Network	24-Apr-20	Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units v. 2.7
Canada	Government of Canada	19-Apr-20	Coronavirus disease (COVID-19): For health professionals
Canada	Government of Canada	16-Apr-20	COVID-19 Pandemic Guidance for the Health Care Sector
China	National Health Commission	07-Mar-20	Implementation plan for COVID-19 prevention and control by the National Health Commission (Version 6)
China	National Health Commission	04-Mar-20	Guidelines for the Diagnosis and Treatment of COVID-19 by the National Health Commission (Trial Version 7)
Ethiopia	Federal Ministry of Health	01-Apr-20	National Comprehensive COVID19 Management Handbook First Edition
India	Government of India Ministry of Health & Family Welfare Directorate General of Health Services	01-Apr-20	COVID-19 Book of Five Response and Containment Measures for ANM, ASHA, AWW
Ireland	Department of Health Ireland	03-Apr-20	V3.0 Preliminary Guidance on Minimising Risk of Transmission of Respiratory Virus in GP Practice
Malaysia	Ministry of Health Malaysia	24-Mar-20	Screening and Triaging
Malaysia	Ministry of Health Malaysia	24-Mar-20	Management of PUI as Outpatients
New Zealand	Ministry of Health New Zealand	08-Apr-20	Updated advice for health professionals: novel coronavirus (COVID-19)
New Zealand	Ministry of Health New Zealand	10-Apr-20	COVID-19: Primary care quick reference guide
Nigeria	Nigeria Centre for Disease Control	14-Mar-20	National Interim Guidelines for Clinical Management of COVID 19
Nigeria	Nigeria Centre for Disease Control	29-Feb-20	Infection Prevention and Control: Recommendations during health care when COVID-19 is suspected
Philippines	Republic of the Philippines Department of Health	11-Apr-20	Interim guidelines on health care provider networks during the COVID-19 pandemic

South Africa	Department of Health Republic of South Africa	27-Mar-20	Clinical management of suspected or confirmed COVID-19 disease
Sri Lanka	Ministry of Health	23-Apr-20	COVID-19 (New Coronavirus) Outbreak in Sri Lanka Interim Guidelines for Sri Lankan Primary Care Physicians Version 3.1
United Kingdom	NHS England	06-Apr-20	Guidance and standard operating procedures: General practice in the context of coronavirus (COVID-19) Version 2.1
United States	Centers for Disease Control and Prevention	07-Apr-20	Outpatient and Ambulatory Care Settings: Responding to Community Transmission of COVID-19 in the United States

For peer review only

Supplementary Material 2: Key study results

Country	Primary care specific	Clinical service delivery	Public health functions	Primary care facility operational level	Health system level
Australia	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Public Health Unit (PHU) staff contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners; response to a notification will normally be carried out in collaboration with the clinicians managing the case</p>	<p>Minimizing risk of spread: Patients presenting to GP, hospital ED, or pathology collection centre meets the suspect case definition, patient should immediately be given a surgical mask to put on, directed to a single room, if patient has severe symptoms suggestive of pneumonia they should be directed to a negative pressure room (if available); HCW should follow contact and droplet precautions, contact and airborne precautions when performing aerosol-generating procedures and for care of critically ill patients</p> <p>Access to medications: Not described</p> <p>Communications: PHU advised that on the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify central state or territory communicable diseases agency</p> <p>Operational continuity: Not described</p>	<p>Integrated planning: Coordination between clinical settings, PHUs and central state or territory communicable diseases agency</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

Canada	No	<p>Surge capacity: Describes the need for surge capacity planning for additional equipment and staff to meet demand and prevent burnout; includes strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlines overall health system risk management approach including scenario in which primary care services are "faced with an overwhelming volume of patients"</p> <p>Service maintenance: Telephone, web-based and other means of telecommunication technology should be used to provide assessment, triage and advice; continuing to provide services that are time sensitive such as contraception, abortion, testing for sexually transmitted infections and selected immunizations and tracking deferred services for follow up when appropriate</p>	<p>Effective surveillance: Linkages with public health will help ensure that health care providers stay informed of local surveillance information and relevant public health guidance, activities, and initiatives</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Not described</p> <p>Access to medications: Implementing a system for prescription renewal without an office or clinic visit; being flexible in allowing people to stock up on opioid agonist treatments and medication to manage chronic pain; information on supply chain issues management and recommended prevention and mitigation strategies</p> <p>Communications: Telephone, web-based and other means of telecommunications technology to ensure ongoing service delivery; calls for development of on-line tools for self-assessment and self-monitoring to be developed in different languages</p> <p>Operational continuity: Describes guidance for ensuring appropriate staffing and encourages organizations to work collaboratively to relocate staff from usual roles and settings based on skills and need as well as outlines supports for healthcare workers and the reciprocal obligations organizations have to their workers</p>	<p>Integrated planning: The coordination of services between all levels of government, across the continuum of care within a health region, and within and across jurisdictions, is integral to an effective and efficient response; Coordination with other components of the pandemic response (e.g., surveillance, laboratory, public health measures) are crucial for optimal health care system functioning</p> <p>Appropriate legislation: Section on the legal considerations that may arise during the provision of COVID-19 healthcare and denotes action for federal, provincial/territorial governments as well as regulatory authorities and healthcare organizations to support the pandemic response</p> <p>Financing mechanisms: New fee codes for virtual consultations and telephone prescribing</p>
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Canada	No	<p>Surge capacity: Preparing for a surge in patients with respiratory infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>Minimizing risk of spread: Offers infection prevention and control guidance and primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p> <p>Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do not require employees to have a healthcare providers note before return to work,</p>	<p>Integrated planning: Engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
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				consider staff screening, make contingency plans for absenteeism including extending hours, cross-training current employees or hiring temporary employees	
China	No	<p>Surge capacity: Asked the designated hospitals to prepare necessary staff, medicines, devices and PPEs. These resources are prioritised for the designated hospitals. Conduct technical trainings of COVID-19 for health care staff in all level of health facilities</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Using the existing national surveillance network to improve etiology surveillance. Regulating the standard procedures for COVID-19 case reporting, updating and correction. Regulating the standard procedures for specimen collection, transportation, storage for COVID-19 test. Technical guide for COVID-19 lab test is ready for use</p> <p>Control measures: Monitoring works will be led by health authorities of county level and cooperated with relevant organizations and departments. Guides on case investigation and close contact management are ready from the national CDC.</p>	<p>Minimizing risk of spread: Emphasize infection control in health facilities based on existing regulations. Improve disinfection at home, in isolation wards, transportation, medical observation places, and improve personal protection among staff involved in epidemiological investigation, case transportation, medical observation, burial, disinfection, specimen collection and lab works. Specific guides for disinfection in specific places and personal protection are ready for use</p> <p>Access to medications: Not described</p> <p>Communications: Use of telecommunications to coordinate amongst health facilities</p> <p>Operational continuity: Not reported</p>	<p>Integrated planning: Mobilizing different organizations to improve case finding including all level of health facilities, primary level government organizations, employers, and monitoring of close contact. Improve the data sharing among different departments through regular meetings to discuss situation and trend of COVID-19</p> <p>Appropriate legislation: Grading the level of risk for every county according to existing laws and regulations on infectious disease and public health emergency and implement different strategies according to the risk level</p> <p>Financing mechanisms: Ask the local government to commit funding and materials for COVID-19 prevention and control</p>
China	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: If COVID-19 suspected a case report is submitted through the internet to the</p>	<p>Minimizing risk of spread: Not described</p> <p>Access to medications:</p>	<p>Integrated planning: Patients presenting to doctors with symptoms of COVID-19 should be transferred to a predesignated</p>

			CDC within 2 hours after initial suspicion and specimens should be collected for COVID-19 nucleic acid test	Not described Communications: Not described Operational continuity: Not described	hospital using secured dedicated transportation Appropriate legislation: Not described Financing mechanisms: Not described
Ethiopia	No	Surge capacity: Develop staffing plan to allow for expanded service hours when needed Service maintenance: Determine if outpatient locations and services should remain open if the threat is too great to staff and patients; Develop a process to limit/cancel non-essential visits; Develop referral/deferral plans for patients that do not need acute care	Effective surveillance: Rumour investigation and verification process may initiate from health facilities (governmental and non-governmental) by calling a dedicated number Control measures: Triage to be conducted at sick patients first point of contact with health system	Minimizing risk of spread: Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies, details of these not described Access to medications: Develop a plan to expedite medication refills, details of plan not described Communications: Develop a process for screening and triage of phone and email requests for care to limit office visits to those that require an in-person provider evaluation, details of these not described Operational continuity: Develop staffing plan to allow for expanded service hours when needed, details of these not described	Integrated planning: Not described Appropriate legislation: Not described Financing mechanisms: Not described
India	Yes	Surge capacity: Describes offloading of awareness and education tasks by	Effective surveillance: Gather accurate information from the person, gather	Minimizing risk of spread: When going to the field, carry a sanitizer/soap for hand	Integrated planning: Create a supportive environment by talking to local influencers,

		<p>recommending that HCWs Seek the support of local influencers to support community awareness campaigns, identify high risk groups and share preventive measures and encourage representative from these groups to keep communicating to others; divide village into smaller groups with 'group leaders' and keep contact details for emergency support</p> <p>Service maintenance: Not described</p>	<p>accurate information from the person: their name, date of birth, travel history, list of symptoms, record and communicate as per the surveillance format. Write the information clearly</p> <p>Control measures: ANM to support DSO/MO in contact tracing and reporting and feedback; ANM with help of ASHA, CHV and ICDS-AWW to support DSO/MO implement home quarantine, home care and supportive services; address psychosocial care</p>	<p>washing, carry masks and extra masks if required, avoid touching your face, avoid touching high touch points (door bells, knobs, support rails)</p> <p>Access to medications: Not described</p> <p>Communications: ANM, AWW and ASHA to provide information to communities re:COVID-19 as well as continuing their routine primary care duties, communicate with District Surveillance Officer, Medical Officer; State Helpline Number; Ministry of Health & Family Welfare, Government of India 24x7 helpline</p> <p>Operational continuity: Not described</p>	<p>planning community support for high risk groups, developing community networks for support, help develop community household emergency contact lists</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
Ireland	Yes	<p>Surge capacity: Not described</p> <p>Service maintenance: Remote consultations</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Initial assessment and triage over telephone to determine if they should be seen in practice or sent to a COVID-19 testing facility or COVID-19 assessment hub; suspend 'walk-in' appointments and require telephone screening; place signs at entrance</p>	<p>Minimizing risk of spread: For symptomatic patients to be seen in practice, try to see them in succession during specific hours; minimize their time spent in the practice environment and separate from other patients; patients with respiratory symptoms should be offered a mask; hand hygiene, not touching face, PPE guidance for staff, physical distancing of 1 to 2m between staff and patients and between patients</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				<p>Access to medications: Not described</p> <p>Communications: GPs should take all practical measures to assess and manage patients with symptoms of infection remotely using telephone and other remote communication including consideration of using video links through mobile phones/tablet/computer where practical</p> <p>Operational continuity: Not described</p>	
Malaysia	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: If PUI, take patient identifiers and notify the district health office</p> <p>Control measures: Provide good visual signages in all relevant languages; provide active screening; if PUI place patient in pre-designated waiting area; patient they can use own transport to nearest screening hospital or contact the onward referral site for transport arrangement</p>	<p>Minimizing risk of spread: Disinfect waiting area after patient leaves</p> <p>Access to medications: Not described</p> <p>Communications: Notify the district health office of PUI sent for further investigation</p> <p>Operational continuity: Not described</p>	<p>Integrated planning: Notify the district health office of PUI sent for further investigation</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
Malaysia	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p>	<p>Minimizing risk of spread: A special area should be set up for COVID-19 to which PUI can be directly assessed and managed by a dedicated</p>	<p>Integrated planning: Consult with physician-on-call of screening hospital and determine whether further review is needed or whether PUI requires</p>

			Control measures: Screening and triage of person under investigation	team where possible; adhere to infection, prevention and control guidelines in Annex 7 and use PPE Access to medications: Not described Communications: Consult with physician-on-call of screening hospital Operational continuity: Not described	admission to admitting hospital; PUI from GP or private hospital to be reassessed by screening hospital, screening hospital will inform and coordinate referral to admitting hospital if necessary Appropriate legislation: Not described Financing mechanisms: Not described
New Zealand	Yes	Surge capacity: Not described Service maintenance: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Effective surveillance: Not described Control measures: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Minimizing risk of spread: Frequent handwashing, avoiding touching face, cough etiquette, adherence to standard infection prevention and control practices in primary health care; PPE for patient and staff who will be in contact with the patient Access to medications: Not described Communications: Not described Operational continuity: Not described	Integrated planning: Coordination with District Health Boards Appropriate legislation: Not described Financing mechanisms: Not described
New Zealand	Yes	Surge capacity: Not described Service maintenance: Patients with suspected, probable or confirmed COVID-19 infection, or those under investigation,	Effective surveillance: Not described Control measures: Not described	Minimizing risk of spread: PPE for patient and staff who will be in contact with the patient for more than 15 minutes and within 2 metres; dedicated room for patient;	Integrated planning: Coordination with District Health Boards Appropriate legislation: Not described

		should be managed medically according to their symptoms and clinical state. They do not need to be hospitalised unless clinically indicated and their home care situation is suitable. No description of measures of continuation of ongoing routine care		<p>general cleaning of the room following patient transfer</p> <p>Access to medications: Not described</p> <p>Communications: Primary care is responsible for informing patients and providing advice if test result is negative. Public health units will inform patients and provide information if the result is positive.</p> <p>Operational continuity: Not described</p>	<p>Financing mechanisms: Not described</p>
Nigeria	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Maintain Infection Prevention and Control procedures, identify staff who will be involved in transfer of suspected case to designated treatment centre, prepare documents and assemble personal belongings</p> <p>Access to medications: Not described</p> <p>Communications: On identification of a suspect cases, the point of identification should notify the State Epidemiologist immediately through the quickest possible means</p> <p>Operational continuity:</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				Not described	
Nigeria	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Maintain a screening register Control measures: Set up a triage station and use triage questions based on case definition to obtain history; passive screening through signs; if patient is symptomatic isolate in designated area; while in isolation provide education and notify the Local Government Area Disease Surveillance and Notification Officer (DSNO), State DSNO or State Epidemiologist	Minimizing risk of spread: Use of PPE including gloves, medical/surgical mask and gown; restricting staff access to isolation rooms; consider bundling activities to minimize room entry; ensure appropriate ventilation; Provide physical barriers or partitions to guide patients through triage areas; ensure appropriate environmental infection control Access to medications: Not described Communications: Toll-free number to notify a suspected case for further testing and investigation Operational continuity: Not described	Integrated planning: Not described Appropriate legislation: Not described Financing mechanisms: Not described
Philippines	No	Surge capacity: Outlines that health care utilization is expected to rise; outlines systems-wide surge capacity plans through health care provider networks (HCPN) to optimize the COVID-19 model of care and strengthen the health system response - calls on local government units to organize HCPNs across public and private sector	Effective surveillance: Not described. Control measures: Phone triage, HCPN to designate a primary care facility within their catchment as a designated site for triaging patients either to temporary facilities for those with mild symptoms or to COVID-19 referral hospitals for those	Minimizing risk of spread: All health facilities shall endeavour to provide telemedicine services for patients within their HCPN to promote physical distancing whenever possible Access to medications: Not described	Integrated planning: Coordination between Department of Health Centers for Health Development and local government units to form province- or city-wide health systems to respond to a manage both non-COVID-19 and COVID-19 patients Appropriate legislation: Not described

		Service maintenance: Not described; role of Rural Health Units (RHU), Urban Health Centers (UHC), and medical outpatient clinics as the main navigators/first contact in the HCPN and determine the appropriate facility for its patients	with severe symptoms or comorbidities	Communications: Phone triage via telemedicine if available Operational continuity: Province- and city-wide HCPNs shall ensure dedicated Human Resources for Health (HRH) for triaging, contact tracing and facility-based management of patients based on the most updated DOH guidelines and protocols	Financing mechanisms: Not described
South Africa	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Not described Control measures: Including screening questionnaire as part of standard triage at healthcare facilities	Minimizing risk of spread: Suspected cases to be given a surgical mask and directed to a separate area or isolation room and 1-2m distance should be kept between other patients, limit the movement of the patient and ensure a dedicated bathroom Access to medications: Not described Communications: Routine emergency department triage systems may be used Operational continuity: Not described	Integrated planning: Routine emergency department triage systems may be used for arranging transfer of patients for testing Appropriate legislation: Not described Financing mechanisms: Not described
Sri Lanka	Yes	Surge capacity: Not described Service maintenance: Remote consultations for ongoing care, as well as for triage of suspected COVID-19 patients;	Effective surveillance: Not described Control measures: Phone triage, notice on primary care facilities to make patients aware that	Minimizing risk of spread: Remote consultations for all with aim to triage COVID-19 suspected patients with minimum exposure to healthcare staff and other patients; in cases where in-	Integrated planning: Response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and admit to nearest COVID acute care isolation hospital, follow up

		discusses mental and psychological well-being and offers a conversation guide for providers	consultations will occur over the phone; passive screening through notices outside clinic; response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and call an ambulance to convey the patients nearest COVID acute care isolation hospital, follow up through the public health team and inform the hospital	person examination is needed, patients suspected of COVID-19 to wait in a separate waiting area; staff not to use public transport; guidance on proper attire and personal grooming for PPE use; guidance on the need for and use of PPE; guidance on hand hygiene; guidance on physical distancing within clinics and creation of separate waiting area; prioritizing patients with respiratory symptoms; removal of toys, magazines, pens and shared items in waiting rooms; guidance on facility disinfection; guidance on personal disinfection Access to medications: Not described Communications: Phone triage; communication with public health and referral hospitals Operational continuity: Guidelines strongly recommend that primary care physicians continue their clinical practice if they can adhere to the guidelines	through the public health team and inform the hospital Appropriate legislation: If any patient refuses to admit / home isolation, seek police/legal support in accordance with the Quarantine Law Financing mechanisms: Not described
United Kingdom	Yes	Surge capacity: Local areas will need to consider, with their clinical commissioning group (CCG), the operating model that best suits their local context and arrangements; A key enabler will	Effective surveillance: Not described - patient is triaged by NHS 111 Control measures: Patients should be triaged remotely;	Minimizing risk of spread: Practices should work together to safely separate different patient cohorts:	Integrated planning: Referral using NHS 111 for symptomatic patients; Reference to the Standard Operating Procedures for community pharmacy and community services (when

		<p>be ensuring that staff can access GP computer systems from locations other than their usual or base location</p> <p>Service maintenance: Remote consultations; dedicated home visiting services for shielded patients; access to urgent care and essential routine care should be maintained for all patients; document discusses mental health and psychological well being, advanced care planning, palliative care; COVID-19 care is not described</p>	<p>patients with symptoms of COVID-19 directed to NHS 111; clear signage and communications to direct symptomatic patients</p>	<p>patients with symptoms of COVID-19; shielded patients; and the wider population; Staff should be allocated to either symptomatic patients or other patient groups; offer 2 models - zoning or practice designation to manage face to face appointments; PPE and clinical decontamination guidance</p> <p>Access to medications: Advise practices to not increase repeat prescriptions to minimize supply chain pressure; urgent request for practices that do not accept orders for repeat prescriptions from third parties to review this policy to support social distancing</p> <p>Communications: Remote consultations and video consultations; digital isolation notes for patients' employers; home visits; phone linkages</p> <p>Operational continuity: Section on 'practice resilience' to maximise clinical capacity and provide business continuity resilience negotiated through regional bodies and commissioners</p>	<p>published) may be helpful to ensure joined up working; Home visiting can be organised at network or place level to deliver care at home to shielded patients, and this will be needed in either model; provision of non-medical support through social prescribing link workers; link with Department for Work and Pensions to accept digital isolation notes; encouraged to engage with research programs</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
United States	Yes	Surge capacity: Preparing for a surge in patients with respiratory	Effective surveillance: Not described	Minimizing risk of spread: Offers infection prevention and control guidance and	Integrated planning: Engage local community service organizations and home health

		<p>infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p> <p>Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do not require employees to have a healthcare providers note before return to work, consider staff screening, make contingency plans for absenteeism including</p>	<p>services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
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				extending hours, cross-training current employees or hiring temporary employees	
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National primary care responses to COVID-19: A rapid review of the literature

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Full Title:

National primary care responses to COVID-19: A rapid review of the literature

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ABSTRACT:

Objective: The aim of this review, conducted in April 2020, is to examine available national primary care guidelines for COVID-19 and to explore the ways in which these guidelines support primary care facilities in responding to the demands of the COVID-19 pandemic.

Design: Rapid review and narrative synthesis

Data Sources: PubMed, Embase and Google, as well as the websites of relevant national health departments were searched from January 1 2020, to April 24, 2020.

Eligibility Criteria: Documents included must be issued by a national health authority, must be specific to COVID-19 care, directed at a healthcare workers or managers and must refer to the role of primary care in the COVID-19 response.

Results: We identified 17 documents from 14 countries. An adapted framework on primary care challenges and responses to pandemic influenza framed our analysis. Guidelines generally reported on COVID-19 service delivery and mostly made specific recommendations for ensuring continued delivery of essential primary care services through telehealth or other virtual care modalities. Few offered guidance to support surveillance as a public health function. All offered guidance on implementing outbreak control measures, largely through flexible and coordinated organizational models with partners from various sectors. There was a lack of guidance to support supply chain management and practice resilience in primary care, and lack of personal protective equipment represents a serious threat to the provision of quality care during the pandemic.

61
62 **Conclusions:** Current national primary care guidelines for COVID-19 provide guidance on
63 infection control and minimizing the risk of spread in primary care practices, while supporting
64 the use of new technology and coordinated partnerships. However, to ensure primary care
65 practice resilience and quality of care is upheld, guidelines must offer recommendations on
66 supply chain management and operational continuity, supported by adequate resources.

68 **ARTICLE SUMMARY: (Strengths and Limitations of this Study)**

- 69 • This is the first rapid review, to our knowledge, to examine national guidelines for
70 COVID-19 treatment and management in primary care.
- 71 • This review includes both English-language and Chinese literature, thus we may miss key
72 regions based on other languages.
- 73 • We have included guidelines from a diverse range of countries to compare global
74 approaches to COVID-19 guidelines for primary care.
- 75 • The review relies on grey literature to capture national guidelines as there is a lack of
76 academic literature on primary care guidelines for COVID-19.

78 **INTRODUCTION:**

79
80 Primary care focuses on medical care and is the provision of integrated, accessible health care
81 services by clinicians who are accountable for addressing a large majority of personal health care
82 needs, developing a sustained partnership with patients, and practicing in the context of family
83 and community (1). In keeping with the commitments of the Declaration of Astana and of the
84 political declaration on Universal Health Coverage, primary care services, as a foundational and

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3 85 central element of robust health systems, are at risk of being overwhelmed by the current
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5 86 coronavirus disease 2019 (COVID-19) pandemic (2–4). Primary care settings are, in many
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7 87 places, patients’ closest and first point of contact with the health system. In the early months of
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10 88 2020 we have seen tremendous pressure placed on health care systems as a result of the
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12 89 pandemic. Countries worldwide have responded to these demands, and prepared for future
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14 90 waves, by rapidly building up dedicated tertiary care facilities and other treatment centres.
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17 91 However, some health systems may not be equipped to quickly increase hospital and health
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19 92 workforce capacity. Thus, in both high income and low-and-middle income countries (LMICs)
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21 93 primary care is poised to become increasingly crucial in the COVID-19 response as secondary
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23 94 and tertiary hospitals are strained by patients requiring intensive management (5). Primary care
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25 95 is key to well-functioning health systems, and has played an important role in managing patients
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27 96 and implementing pandemic policies during the 2009/A/H1N1 pandemic (6). Indeed, the
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29 97 ‘primary care safety net’ has been described as key to treating underserved populations and to
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31 98 providing surge capacity in such circumstances (7).
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38 100 As the onset of COVID-19 is hallmarked by mild to moderate symptoms during which
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40 101 individuals are infectious, primary care has a crucial role in the prevention, triage, diagnosis and
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42 102 management of patients in the community. Robust and comprehensive guidelines are needed to
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44 103 support primary care response during pandemics (8). Indeed, primary care has been previously
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46 104 identified as providing key public health functions including, health protection and promotion,
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48 105 disease prevention, community-based screening and testing surveillance and response, as well as
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50 106 emergency preparedness (9). However, current guidelines are heterogenous and span care
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53 107 provided in primary care, home care as well as isolation guidance. Given that the main benefit of
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guidelines is to improve quality of care received by patients, there is a need for rapid research and synthesis to inform guidelines creation that supports primary care providers in delivery quality care during the pandemic (10). The aim of this review is to examine available national primary care guidelines for COVID-19 and to explore the ways in which these guidelines support primary care facilities in responding to the demands of the COVID-19 pandemic.

METHODS

In light of the rapidly evolving situation, policy makers require evidence synthesis to produce robust guidance for primary care providers. The WHO recommends the use of rapid reviews to provide such evidence (11). We conducted a rapid document review with a qualitative analytical approach to allow for narrative synthesis of the data (12).

Our review is informed by an adapted framework outlining primary care challenges and responses to pandemic influenza (Table 1) (13). The framework outlines four key domains: clinical service delivery, public health functions of primary care facilities, operational level functions at the primary care facility, and the health systems level factors – all of which may act as barriers or facilitators to care provision.

Table 1: Adapted framework of primary care challenges and response to pandemic influenza.

Domain of Practice	Challenges during a pandemic	Response to be addressed
Clinical service delivery	Surge in demand for primary care services	Ways to enhance surge capacity

	Sustaining other urgent or essential primary care services	Maintenance of urgent and essential primary care clinical services
Public health functions	Effective surveillance	Contributing data and specimens for clinical and laboratory-based surveillance
	Implementing control measures	Assisting public health units with contact tracing, triage and monitoring people in isolation or quarantine
Primary care facility operational level	Minimizing the risk of COVID-19 spread in the practice setting	Structuring clinical facilities and stockpiling personal protective equipment to enable effective infection control
	Access to medications	Reliable delivery of medications and essential equipment to the practice
	Ongoing communications with patients, public health and the health system	Strengthening capacity of communication systems
	Ensuring operational continuity	Organizational arrangements to sustain efficient and effective services
Health system level	Overall organization of the health system	Integrated planning across the health system, e.g. with other primary care facilities, ambulatory care services, public health units and hospitals
		Appropriate legislation, e.g. to address professional accreditation, indemnity and ethical concerns
		Financing mechanisms for general practice

Adapted from Patel MS, Phillips CB, Pearce C, Kljakovic M, Dugdale P, Glasgow N. General Practice and Pandemic Influenza: A Framework for Planning and Comparison of Plans in Five Countries. PLOS ONE. 2008 May 28;3(5):e2269

Information Sources and Search

To identify relevant documents we searched PubMed, Embase and Google, as well as the websites of relevant national health departments, such as the ministries of health or public health, or centres for disease control. We searched guidelines from January 1 2020, to April 24, 2020. We applied the following standard Boolean phrase during the searches: [‘COVID 19’ AND ‘guidelines’ AND ‘ministry of health’ OR ‘centres for disease control’ AND country name]. We

137 also searched references of the selected relevant policy documents for additional related
138 information. We consider guidelines to be documents issued by national authorities within
139 countries that communicate the intention of that national authority as to how COVID-19 should
140 be diagnosed, treated and managed in a primary care setting. We attempted to ensure global
141 representation by searching for countries with publicly available English or Chinese-language
142 documentation from across World Health Organization regional groups. We began with
143 countries that had experienced community transmission of COVID-19 before our search date,
144 with the assumption that these countries would have primary care guidance available. If not
145 available, we then examined countries with COVID-19 cases identified before our search date, to
146 identify English or Chinese language national guidance on primary care.

147

148 **Inclusion Criteria**

149 To be included in our review, the document must be issued by a national health authority
150 (Ministry of Health, National Centre for Disease Control, etc.), it must be specific to COVID-19
151 care, directed at healthcare workers or managers and must refer to the role of primary care in the
152 COVID-19 response. If the documents were published in series, the most recent version was
153 considered. We chose countries from each of the six WHO regions in order to aim for
154 geographic diversity. Countries were chosen based on their number of reported cases, with
155 oversampling of countries with higher reported case numbers, as well as the availability of
156 English or Chinese language documents.

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158 **Study selection and data charting**

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3 159 Two reviewers screened titles, abstracts and full text against the inclusion criteria. This process
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5 160 followed the PRISMA four stage process (identification, screening, eligibility, and final
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7 161 inclusion). Disagreements were resolved through discussion between the two reviewers. At the
8
9 162 time of study selection, no national guidelines meeting our criteria were available through
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11 163 PubMed or Embase, thus our review relies on grey literature from national sources available in
12
13 164 English or Chinese language. One reviewer charted data from eligible guidance using a
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15 165 standardised Microsoft Excel form developed for this study based on our conceptual framework,
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17 166 this was reviewed by another reviewer.
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22 167
23 168 **Analysis procedures**

24
25 169 The data were analysed using elements of both content analysis and the Framework method
26
27 170 using the conceptual framework above to guide analysis (14,15). We conducted a descriptive
28
29 171 summary of the characteristics of included documents. We provide a narrative synthesis of the
30
31 172 ways in which selected countries are addressing the domains of primary care practice as per our
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33 173 framework. 73
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39 175 **Patient and public involvement**

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41 176 We did not directly involve patients or the public in the conceptualization of this study.
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45 178 **RESULTS**

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48 179 We identified 17 documents from the grey literature which comprised national COVID-19
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50 180 guidelines. Of these 11 were general national guidelines for COVID-19 which referred to
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52 181 primary care within the text, five were specific to primary care and three had primary care as a
53
54 182 specific sub-section. Figure 1 offers a PRISMA diagram of our results. Supplementary Material
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3 183 1 provides an overview of these documents. At the time of the study search, documents meeting
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5 184 our study criteria were found from China, Malaysia, the Philippines, New Zealand, Australia,
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7 185 Canada, the United States, the United Kingdom (UK), Ireland, Ethiopia, Nigeria, South Africa,
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9 186 Sri Lanka and India. Supplementary Material 2 provides a summary of our results.
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[Figure 1. PRISMA Diagram about here]

In Table 2 we present an overview of the key framework domains and their corresponding response indicators for each country. Our results show that all national primary care guidelines included information on control measures, ways to minimize risk of spread and communication mechanisms. The majority of national guidelines also referred to integrated planning mechanisms for primary care. Fewer national guidelines reported on aspects of clinical service delivery in primary care with only half of countries’ offering guidance on surge capacity. Only four of 14 countries’ guidance describing access to medication considerations, and fewer described legislative or financing considerations to support primary care. Only national guidance from Canada covered all domains.

Table 2. Primary care responses by country.

Domain	Pandemic response	CHN	MYS	PHL	NZL	AUS	CAN	GBR	USA	IRL	ETH	NGA	ZAF	LKA	IND
Clinical service delivery	Surge capacity	X		X			X	X	X		X				X
	Service maintenance			X	X		X	X	X	X	X			X	
Public health functions	Surveillance	X	X				X	X			X	X			X
	Control measures	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operations at the primary care facility	Minimizing spread	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Access to medications						X	X	X		X				
	Communications	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Continuity			X			X	X	X		X			X	
Health systems	Integrated planning	X	X	X	X	X	X	X	X				X	X	X
	Legislation	X					X							X	
	Financing	X					X								

CHN = China, MYS = Malaysia, PHL = the Philippines, NZL = New Zealand, AUS = Australia, CAN = Canada, USA = the United States, GBR = the United Kingdom (UK), IRL = Ireland, ETH = Ethiopia, NGA = Nigeria, ZAF = South Africa, LKA = Sri Lanka and IND= India

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Clinical Service Delivery

Guidelines from the Philippines, China, Canada, the United States, the UK and Ethiopia described recommendations to manage surge capacity in primary care facilities during the COVID-19 pandemic. Guidelines from the Philippines and the UK provided guidance on the care of common (eg respiratory) infectious diseases in the context of COVID-19, and described the reorganizing of existing primary care networks to ensure collective capacity within the health system. The Philippines guidelines called on local government units to organize existing health care provider networks across the public and private sector to optimize the COVID-19 model of care (16). The UK guidance asked practices to work with their Clinical Commissioning group to create regional models of care that suit their context (17). Guidance from China describes prioritizing staff, medicines and PPE for designated township hospitals (the site of primary care in China), but also capacity building the workforce system-wide through technical trainings to ensure surges can be effectively managed (18,19). The United States guidance highlights that planning for a surge in patients with respiratory infection should be a primary goal of health facilities (20). However, the document did not outline recommendations for action beyond ensuring adequate staffing. This is similar to guidance from Ethiopia which encouraged providers to allow for expanded service hours when needed to ensure access to care during surges (21). Canadian guidance expanded upon this and described the need for surge capacity planning to ensure there is additional equipment and staff to meet demand and prevent burnout. The guidance included strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlined an overall health system risk management approach including the scenario in which primary care services are "faced with an overwhelming volume of patients" (22).

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228 Few jurisdictions in our review recommended care for persons with COVID-19 in the
229 community (primary care supported home care) as an overarching national approach and thus,
230 few guidelines described the ways in which primary care service delivery should encompass the
231 care of individuals with COVID-19. The United States guidance described how primary care
232 providers should arrange for a health care worker to check in with patients under home care for
233 COVID-19 through telephone or patient portals (20). New Zealand guidance described how the
234 provision of active-monitoring of non-hospitalized probable and confirmed cases is the
235 responsibility of the public health unit unless there has been clear delegation to another provider
236 (23).

237
238 Guidance from Canada, Ireland, the UK, Sri Lanka and Ethiopia described the maintenance of
239 urgent and essential primary care clinical services. The majority of these recommended the use
240 of remote consultations offered via telehealth (17,21,22,24). Guidance from Canada also outlined
241 the need to ensure continuity of time-sensitive essential services such as contraception, abortion,
242 testing for sexually transmitted infections, and selected immunizations, as well as the need for
243 providers to track deferred services for later follow up (22). Guidelines from Ethiopia similarly
244 called for referral or deferral plans for patients that do not need acute care (21). Guidance from
245 the UK described the potential to use dedicated home visits for those patients at high risk for
246 severe COVID-19 infection (17). The guidance also described the need for mental health and
247 psychological well-being services in primary care, as well as advanced care planning and
248 palliative care services.

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Public Health Functions

Guidelines from China, Canada, Malaysia, Ethiopia, Nigeria and India offered information on the ways in which primary care facilities can support surveillance activities (19,21,22,25–28). Surveillance activities, as per our framework definition, may be broadly categorized as the provision of biologic samples or data to public health units as part of larger active surveillance activities. No guidance in our selected documents described the collection of biologic samples. Guidance from China, Malaysia, Ethiopia and India described a process whereby primary care would collect information of suspected individuals and transmit this information to public health teams for further investigation (18,21,25,27). Guidance from Nigeria recommended that providers should maintain a screening register of patients (26). Both Canadian and Australian guidelines highlighted that local public health units are responsible for reporting COVID-19 cases to provincial, territorial or state public health authorities (29,30). Guidance from India described the role of community health workers who have been mobilized to support contact tracing (27).

Most guidance outlined steps towards the implementation of control measures within primary care facilities. Guidance from the Philippines, Sri Lanka, the United States, Ireland, and the UK specifically described a process which included phone-based triage (16,17,20,24,31). In the Philippines, Sri Lanka, Ireland and the UK patients reporting symptoms of COVID-19 over the phone would be triaged to designated COVID-19 assessment or treatment sites for further investigation (16,17,31). In the UK (NHS 111) and United States, patients would be triaged/ diagnosed over the phone to determine whether they can be presumed to be COVID-19 positive and advised to remain at home and self-monitor (17). Guidance from Canada, Malaysia, South

273 Africa, Ethiopia described the role of primary care facilities in screening, triage and referral
274 (29,22,25,32,21). Guidance from the UK, Ireland, the United States, China, Malaysia and
275 Nigeria also specifically highlighted the need for patient screening from first contact at the clinic
276 through observation of symptoms by all clinic staff and receptionist screening through questions
277 (17,19,20,25,26,31).

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279 **Primary Care Facility Operational Level**

280 At the primary care facility level, guidance from all included countries offered recommendations
281 for minimizing the spread of infection within primary care facilities through strategies to
282 minimize contact, rigorous infection prevention and control procedures and the use of personal
283 protective equipment (PPE). Guidance from the Philippines and Sri Lanka recommended
284 telemedicine to minimize contact, while guidance from Ireland suggested offering dedicated
285 clinic hours to see symptomatic patients and to schedule these appointments in succession
286 (16,24,31). Nigeria similarly recommended that health care facilities bundle care activities to
287 minimize exposure to symptomatic patients (33). Guidance from Canada, the United States,
288 Ireland, the UK, Australia, Sri Lanka, Malaysia, South Africa and Nigeria described the need to
289 ensure physical distancing within primary care facilities and the need to set up dedicated areas
290 for patients with symptoms of COVID-19 (17,20,22,24,25,30–33). Guidance from the United
291 States, Ireland, New Zealand, Australia, Sri Lanka and South Africa specifically recommend
292 providing symptomatic patients with a disposable surgical mask upon entry to the clinic. All
293 guidance reported on the need for staff PPE complemented with frequent hand washing and
294 avoiding touching one's face. Guidance from Sri Lanka described clothing choices (wearing
295 short sleeves) and personal grooming measures (keeping clean shaven and tying hair back) to

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3 296 support the use of PPE and appropriate hygiene (24). Canadian guidelines provided advice on the
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5 297 reprocessing of N-95 respirators by staff (29).
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10 299 Guidance from Canada, the United States, the UK and Ethiopia described measures to ensure
11
12 300 that patients had uninterrupted access to medications (17,20–22). Guidance from Ethiopia
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14 301 recommended facilities develop plans to expedite medication refills (21). Guidance from the
15
16 302 United States encouraged providers to reach out to high risk patients and ensure they have
17
18 303 sufficient medication (20). Guidance from the UK advised practices not to increase repeat
19
20 304 prescriptions so as to reduce supply chain pressure to deliver multiple months’ worth of
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22 305 medications in a short time span (17). Further, the guidance made an urgent request for practices
23
24 306 to change their policies and ensure they accept repeat prescription orders online through the
25
26 307 practice website, to support population-level physical distancing policies. Guidance from Canada
27
28 308 encourages practices to implement a system for prescription renewal that does not require in
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30 309 person visits, as well as to be flexible in allowing patients to stock up on opioid agonist
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32 310 treatments and medication to manage chronic pain (22). Canadian guidance was unique in
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34 311 offering information on supply chain issues and management, as well as prevention and
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36 312 mitigation strategies.
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40 314 All guidance reported methods of telephone communication with the wider health system either
41
42 315 as part of telephone triage or referral to onward tertiary care. Beyond the health system, guidance
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44 316 from the UK described an online system linking the NHS and the Department for Work and
45
46 317 Pensions to ensure acceptance of digital isolation (‘sick’) notes (17). Guidance from China,
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48 318 Canada, the United States, Ireland and the UK specifically described the use of
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telecommunications technology to ensure ongoing service delivery (17,19,20,22,31). Guidance from China reported the use of smart-phone apps to connect with patients, as well as to ensure communication between the health system and community groups mobilized to respond to the pandemic (19). Guidance from the UK (NHS Covid-19) includes online guidance and self-assessment. While Canada calls for the development of on-line tools for self-assessment and self-monitoring in different languages (22).

Guidance from the Philippines, China, Canada, the United States, the UK and Ethiopia reported on strategies to ensure operational continuity of primary care facilities. Guidelines from the Philippines and Ethiopia recommended the creation of staffing plans to address potential human resource shortages (16,21). Guidelines from the United States encourage individual practices to plan for absenteeism through cross-training of current employees, extending hours, or hiring temporary employees (20). Guidance from Canada, China and the UK encourage cross-organizational collaboration to maximise clinical capacity through relocation of staff or services based on skills, need and available training (17,19,22).

Health System Level

All guidance referred to some form of integrated planning across the health system, most commonly this was through the triage, notification or referral processes. Guidance from the Philippines described coordination between the Department of Health and local government units to form province- or city-wide health systems incorporating private and public sector care in order to respond to SARS-CoV-2 (16). Guidance from the UK encouraged primary care practices to engage with research programs, work with community pharmacy and community

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3 342 services, and to provide non-medical support through collaboration with social prescribing link
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5 343 workers, who provide connections to community groups and statutory services for practical and
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7 344 emotional support (17,34). Guidance from China reported on the need to mobilize different
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9 345 organizations to improve case finding including all level of healthcare facilities, local
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11 346 governments, community organizations and employers to support the pandemic response (19).
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13 347 This was facilitated by a call for improved data sharing among different departments through
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15 348 regular meetings and working groups. From a grassroots perspective, guidance from India
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17 349 encouraged community health workers to create a supportive local environment by talking to
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19 350 local influencers, planning community support for high risk groups, developing community
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21 351 networks for support, help develop community household emergency contact lists (27). In the
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23 352 United States, guidance encourages primary practices to engage local community service
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25 353 organizations and home health services to assist home care patients with delivery of food,
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27 354 medication and other goods (20).
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35 356 National guidelines from Sri Lanka, China and Canada described legislation (19,22,24).
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37 357 Guidance from Sri Lanka called for primary care providers to seek police or legal support in
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39 358 accordance with the Quarantine Law for patients who refused to be admitted to hospital or
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41 359 undertake home isolation (24). In the guidance from China this included an explanation of
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43 360 policies which grade each county based on level of risk of COVID-19 outbreak and tailoring
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45 361 interventions and controls according to the risk level (19). Guidelines from Canada included a
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47 362 section on the legal considerations that may arise during the provision of COVID-19 healthcare
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49 363 and denotes action for federal, provincial/territorial governments as well as regulatory authorities
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51 364 and healthcare organizations to support the pandemic response (22). From a financing
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perspective, guidance from China asked local governments to commit funding and materials, such as PPE and medical supplies, towards COVID-19 prevention and control (19). The Canadian guidelines called for provinces and territories to establish new billing fee codes for virtual consultations and telephone prescribing (22).

DISCUSSION

The primary goal of clinical guidelines is to help improve quality of care (10). Our rapid review findings highlight strengths, opportunities and gaps in COVID-19 national guidelines for primary care published in early 2020. Strengths of available national guidelines include clear and robust guidance on control measures, minimizing the risk of spread and communication between primary care and other health system actors. Opportunities to support primary care facilities include the use of telehealth to support guidance on surge capacity, ensuring service maintenance and supporting integrated planning. To address gaps in national guidance, there is need for strengthened guidance on access to medication, ensuring operational continuity of primary care facilities and research on optimal configuration of primary care services for a resilient response. This review also underscores the need to ensure a safe working environment through appropriate PPE resource allocation.

Our review found that telehealth plays a key role in national guidelines for COVID-19 and offered a way to provide clinical service delivery and public health functions in primary care. Importantly, countries such as Canada have made clear in national guidance the financial mechanisms available to bill for primary care telehealth services (22). Others, such as Australia, have provided similar mechanisms, however, these are not explicitly included in national

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3 388 guidelines (35). Telehealth has the potential to provide accessible, comprehensive and
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5 389 continuous care for both patients with COVID-19, and those requiring routine care for other
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7 390 health needs, including psychosocial well-being needs; however, caution is warranted in viewing
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9 391 technological solutions as a panacea to all patient groups given the known challenges to access in
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11 392 under-resourced settings and to under-served populations (36). Health systems will also face
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13 393 structural challenges to scaling and sustaining telehealth, as well as ensuring onward linkage to
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15 394 care, as demand outpaces capacity. For example, the telehealth network in Ontario, Canada
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17 395 experienced a day long shut down due to technical issues after media coverage on telehealth
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19 396 screening (37). In addition, many primary care clinics in LMICs may not have sufficient health
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21 397 information systems, internet connection, and online payment options to effectively operate
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23 398 telehealth. As models of telehealth are developed, they should be clearly communicated in
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25 399 national guidelines.
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29 401 Our findings also show movement at the primary care facility level and the health system level
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31 402 towards flexible and coordinated organizational models to support service delivery and, to a
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33 403 lesser extent, public health functions. Available guidelines require primary care to deliver a
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35 404 range of COVID-19 services include screening and assessment, home care and discharge
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37 405 support, as well as attend to the ongoing routine care needs of patients. Most of the reviewed
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39 406 primary care guidelines relied on referral to special centres or dedicated hospitals for public
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41 407 health functions such as testing and tracing. To achieve service delivery goals and ensure
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43 408 integration with public health units, guidelines report on establishing partnerships through
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45 409 existing or newly formed networks of primary care facilities and other health system actors,
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47 410 including both public and private sectors. While national guidelines from the Philippines
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specifically refer to partnerships with the private sector, there have been other examples of coordination with the private sector to strengthen health system capacity for triage in primary care. Public Health Preparedness Clinics in Singapore and respiratory clinics in Australia, which actively involve private primary care practices in the COVID-19 response, are a promising model to build capacity for triage in primary care (38,39). Private care partnerships have previously proven promising in providing quality care for tuberculosis in LMICs (40, 41). These activities support and strengthen community-oriented primary care. In community-oriented primary care, primary clinical care for individuals and families is provided with special attention to continuity of care and includes a focus on the demographics and needs of the community as a whole in planning, delivering and evaluating care (42). However, coordinated and flexible organizational models will be challenged by pre-existing health system fragmentation. Countries will need to actively strengthen linkages between primary care and public health units to support a robust trace, test, isolate and support response to COVID-19. Further, the connection between primary and secondary care must be also strengthened to ensure that guideline recommendations can be consistently followed, even during surges.

National guidance from the United States and other countries additionally calls for links to community and social service organization to support patients during quarantine or self-isolation. Community partnerships with non-government organizations (NGOs) and faith-based organizations for patient support are foundational to other infectious disease programs such as tuberculosis and HIV and have shown to be beneficial in pandemic influenza preparedness (9,43–45). As many LMICs rely on community health workers, community organizations and NGOs for routine service delivery, this presents an opportunity to scale up the available resource

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pool for coordinated and comprehensive primary care. To support such initiatives, there is a need for inclusion of guidance on best practices for establishing flexible organizational models which bridge often poorly connected or separate sectors including health, social services, faith organizations and the private sector. This guidance must provide recommendations that are supported by financial and training resources to provide coordinated and quality care, while ensuring fair and safe work for those in these roles.

Underpinning these efforts and opportunities, however, is the critical worldwide shortage of medical products, including PPE and COVID-19 testing kits, which poses a direct risk to healthcare workers, community organization support workers, patients and their families (46,47). Findings from our review show guidelines clearly report the need for primary care workers to use PPE in order to provide safe and quality care for patients with COVID-19, however the scale of the pandemic is placing unprecedented demands on these resources. As our findings show, health systems globally are scaling up their health workforce and coverage through re-training of non-practicing health workers or partnerships with private providers and community organizations. This capacity will be directly threatened by the ongoing shortage of PPE and medical supplies, given not only the requirement of PPE for safe working conditions but also that many providers have stated they will not work without adequate PPE. Further, many primary care settings lack the necessary procurement linkages to ensure an ongoing supply of PPE and resources (48–50). Without significant investment and support of mass production of PPE, and complementary supply chain support to ensure distribution, these shortages pose a serious threat to our ability to protect healthcare workers while safely providing comprehensive services to persons seeking care for COVID-19. There is a pressing need to provide guidance on supply

chain management and operational continuity recommendations to ensure what UK NHS guidelines refer to as ‘practice resilience’ in primary care.

The pandemic has exposed weaknesses in health systems worldwide, and countries are using guidelines to communicate important response measures to front line workers. As health systems implement strategies, reconfigure models of care and pivot towards technology, there is also an urgent need for research on optimal configurations of primary care services for resilient response.

Limitations

Given the lack of published literature to date on primary care guidelines or interventions for COVID-19, and the speed at which information is changing as experts adjust to evolving knowledge, this review relied on grey literature. As such, our review is at risk of sampling bias from our search strategy and selected materials, however we have aimed to conduct a thorough grey literature search for publicly available guidelines. Our study may also be limited by our choice of framework analysis, which may have limited our ability to assess relative strengths and weaknesses of national guidance. A further limitation is our analysis only includes guidelines published in English or Chinese language, thus we miss key regions. However, we did search for English guidelines in all WHO regions beginning with countries with the highest reported cases. Finally, our review was conducted with guidelines made publicly available up to April 2020. However, we believe that our review provides important and enduring information for primary care in response to the ongoing COVID-19 pandemic.

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CONCLUSION

Primary care is central to providing quality care for the usual common infections and now also for COVID-19, while also undertaking important public health functions. Appropriate, evidence-based, guidelines play a key role in ensuring that quality of care is maintained, particularly during pandemics which place enormous pressure on health care systems globally. Current national guidelines addressing primary care for COVID-19 demonstrate a focus on providing infection control and minimizing the risk of spread in primary care practices while supporting the use of new technology and coordinated partnerships. However, to ensure primary care practice resilience and quality of care is upheld, guidelines must offer recommendations on supply chain management, coordination and operational continuity, supported by adequate resources and robust research into the optimal configuration of services.

Contributorship Statement:

VH designed the search strategy with input from XW. VH, ZZ and RFA carried out the literature searches and screening and discussed discrepancies with XW. VH, ZZ and RFA carried out extraction. VH wrote the first draft of the review with input from XW. The manuscript was further commented from WD, LL, MK, KR, GZ, CZ, JW and RU.

Competing Interest Statement:

All authors have completed the Unified Competing Interest form (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work.

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Data Sharing Statement:

All data relevant to the study are included in the article or uploaded as supplementary information.

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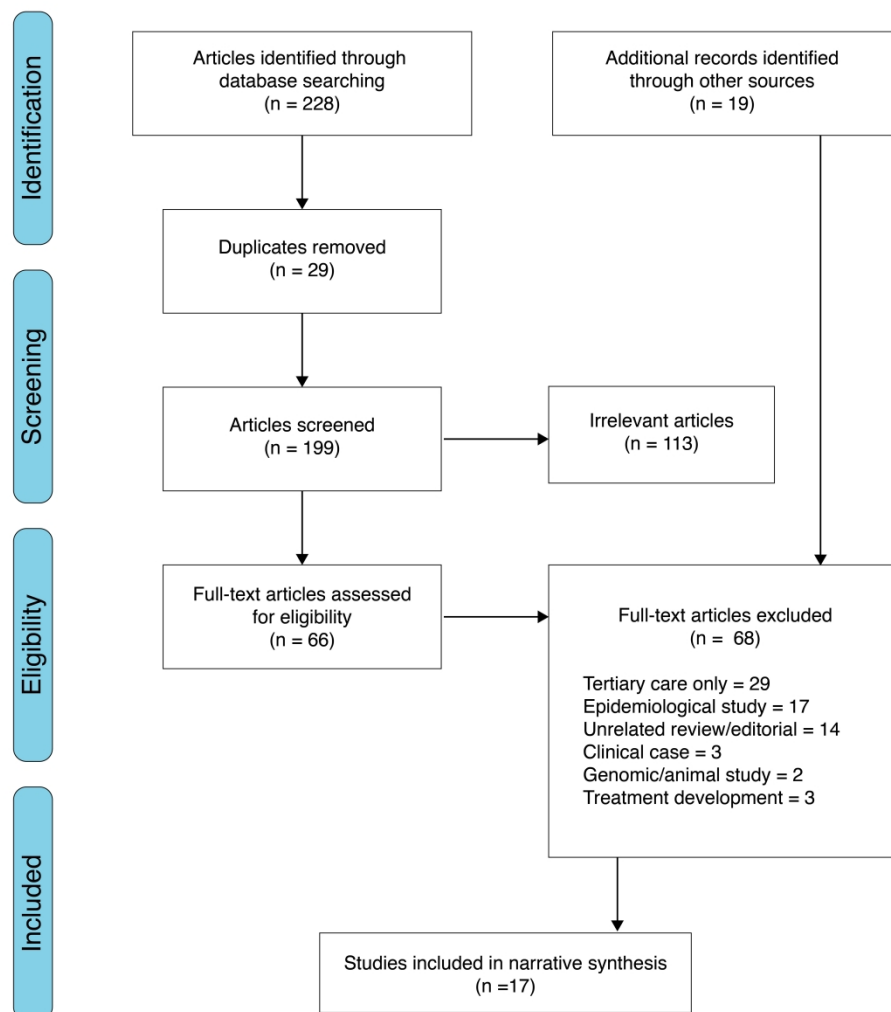


Figure 1
PRISMA Diagram

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Supplementary Material 1: Overview of the study documents

Country	Source	Date Pub.	Title
Australia	Communicable Disease Network	24-Apr-20	Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units v. 2.7
Canada	Government of Canada	19-Apr-20	Coronavirus disease (COVID-19): For health professionals
Canada	Government of Canada	16-Apr-20	COVID-19 Pandemic Guidance for the Health Care Sector
China	National Health Commission	07-Mar-20	Implementation plan for COVID-19 prevention and control by the National Health Commission (Version 6)
China	National Health Commission	04-Mar-20	Guidelines for the Diagnosis and Treatment of COVID-19 by the National Health Commission (Trial Version 7)
Ethiopia	Federal Ministry of Health	01-Apr-20	National Comprehensive COVID19 Management Handbook First Edition
India	Government of India Ministry of Health & Family Welfare Directorate General of Health Services	01-Apr-20	COVID-19 Book of Five Response and Containment Measures for ANM, ASHA, AWW
Ireland	Department of Health Ireland	03-Apr-20	V3.0 Preliminary Guidance on Minimising Risk of Transmission of Respiratory Virus in GP Practice
Malaysia	Ministry of Health Malaysia	24-Mar-20	Screening and Triaging
Malaysia	Ministry of Health Malaysia	24-Mar-20	Management of PUI as Outpatients
New Zealand	Ministry of Health New Zealand	08-Apr-20	Updated advice for health professionals: novel coronavirus (COVID-19)
New Zealand	Ministry of Health New Zealand	10-Apr-20	COVID-19: Primary care quick reference guide
Nigeria	Nigeria Centre for Disease Control	14-Mar-20	National Interim Guidelines for Clinical Management of COVID 19
Nigeria	Nigeria Centre for Disease Control	29-Feb-20	Infection Prevention and Control: Recommendations during health care when COVID-19 is suspected
Philippines	Republic of the Philippines Department of Health	11-Apr-20	Interim guidelines on health care provider networks during the COVID-19 pandemic

South Africa	Department of Health Republic of South Africa	27-Mar-20	Clinical management of suspected or confirmed COVID-19 disease
Sri Lanka	Ministry of Health	23-Apr-20	COVID-19 (New Coronavirus) Outbreak in Sri Lanka Interim Guidelines for Sri Lankan Primary Care Physicians Version 3.1
United Kingdom	NHS England	06-Apr-20	Guidance and standard operating procedures: General practice in the context of coronavirus (COVID-19) Version 2.1
United States	Centers for Disease Control and Prevention	07-Apr-20	Outpatient and Ambulatory Care Settings: Responding to Community Transmission of COVID-19 in the United States

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Supplementary Material 2: Key study results

Country	Primary care specific	Clinical service delivery	Public health functions	Primary care facility operational level	Health system level
Australia	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Not described Control measures: Public Health Unit (PHU) staff contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners; response to a notification will normally be carried out in collaboration with the clinicians managing the case	Minimizing risk of spread: Patients presenting to GP, hospital ED, or pathology collection centre meets the suspect case definition, patient should immediately be given a surgical mask to put on, directed to a single room, if patient has severe symptoms suggestive of pneumonia they should be directed to a negative pressure room (if available); HCW should follow contact and droplet precautions, contact and airborne precautions when performing aerosol-generating procedures and for care of critically ill patients Access to medications: Not described Communications: PHU advised that on the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify central state or territory communicable diseases agency Operational continuity: Not described	Integrated planning: Coordination between clinical settings, PHUs and central state or territory communicable diseases agency Appropriate legislation: Not described Financing mechanisms: Not described

Canada	No	<p>Surge capacity: Describes the need for surge capacity planning for additional equipment and staff to meet demand and prevent burnout; includes strategies that provinces and territories can adopt to enhance primary care surge capacity as well as steps practices can take to manage patient demand on care; outlines overall health system risk management approach including scenario in which primary care services are "faced with an overwhelming volume of patients"</p> <p>Service maintenance: Telephone, web-based and other means of telecommunication technology should be used to provide assessment, triage and advice; continuing to provide services that are time sensitive such as contraception, abortion, testing for sexually transmitted infections and selected immunizations and tracking deferred services for follow up when appropriate</p>	<p>Effective surveillance: Linkages with public health will help ensure that health care providers stay informed of local surveillance information and relevant public health guidance, activities, and initiatives</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Not described</p> <p>Access to medications: Implementing a system for prescription renewal without an office or clinic visit; being flexible in allowing people to stock up on opioid agonist treatments and medication to manage chronic pain; information on supply chain issues management and recommended prevention and mitigation strategies</p> <p>Communications: Telephone, web-based and other means of telecommunications technology to ensure ongoing service delivery; calls for development of on-line tools for self-assessment and self-monitoring to be developed in different languages</p> <p>Operational continuity: Describes guidance for ensuring appropriate staffing and encourages organizations to work collaboratively to relocate staff from usual roles and settings based on skills and need as well as outlines supports for healthcare workers and the reciprocal obligations organizations have to their workers</p>	<p>Integrated planning: The coordination of services between all levels of government, across the continuum of care within a health region, and within and across jurisdictions, is integral to an effective and efficient response; Coordination with other components of the pandemic response (e.g., surveillance, laboratory, public health measures) are crucial for optimal health care system functioning</p> <p>Appropriate legislation: Section on the legal considerations that may arise during the provision of COVID-19 healthcare and denotes action for federal, provincial/territorial governments as well as regulatory authorities and healthcare organizations to support the pandemic response</p> <p>Financing mechanisms: New fee codes for virtual consultations and telephone prescribing</p>
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Canada	No	<p>Surge capacity: Preparing for a surge in patients with respiratory infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>Minimizing risk of spread: Offers infection prevention and control guidance and primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p> <p>Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do not require employees to have a healthcare providers note before return to work,</p>	<p>Integrated planning: Engage local community service organizations and home health services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
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				consider staff screening, make contingency plans for absenteeism including extending hours, cross-training current employees or hiring temporary employees	
China	No	<p>Surge capacity: Asked the designated hospitals to prepare necessary staff, medicines, devices and PPEs. These resources are prioritised for the designated hospitals. Conduct technical trainings of COVID-19 for health care staff in all level of health facilities</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Using the existing national surveillance network to improve etiology surveillance. Regulating the standard procedures for COVID-19 case reporting, updating and correction. Regulating the standard procedures for specimen collection, transportation, storage for COVID-19 test. Technical guide for COVID-19 lab test is ready for use</p> <p>Control measures: Monitoring works will be led by health authorities of county level and cooperated with relevant organizations and departments. Guides on case investigation and close contact management are ready from the national CDC.</p>	<p>Minimizing risk of spread: Emphasize infection control in health facilities based on existing regulations. Improve disinfection at home, in isolation wards, transportation, medical observation places, and improve personal protection among staff involved in epidemiological investigation, case transportation, medical observation, burial, disinfection, specimen collection and lab works. Specific guides for disinfection in specific places and personal protection are ready for use</p> <p>Access to medications: Not described</p> <p>Communications: Use of telecommunications to coordinate amongst health facilities</p> <p>Operational continuity: Not reported</p>	<p>Integrated planning: Mobilizing different organizations to improve case finding including all level of health facilities, primary level government organizations, employers, and monitoring of close contact. Improve the data sharing among different departments through regular meetings to discuss situation and trend of COVID-19</p> <p>Appropriate legislation: Grading the level of risk for every county according to existing laws and regulations on infectious disease and public health emergency and implement different strategies according to the risk level</p> <p>Financing mechanisms: Ask the local government to commit funding and materials for COVID-19 prevention and control</p>
China	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: If COVID-19 suspected a case report is submitted through the internet to the</p>	<p>Minimizing risk of spread: Not described</p> <p>Access to medications:</p>	<p>Integrated planning: Patients presenting to doctors with symptoms of COVID-19 should be transferred to a predesignated</p>

			CDC within 2 hours after initial suspicion and specimens should be collected for COVID-19 nucleic acid test	Not described	hospital using secured dedicated transportation
			Control measures: Not described	Communications: Not described	Appropriate legislation: Not described
				Operational continuity: Not described	Financing mechanisms: Not described
Ethiopia	No	Surge capacity: Develop staffing plan to allow for expanded service hours when needed Service maintenance: Determine if outpatient locations and services should remain open if the threat is too great to staff and patients; Develop a process to limit/cancel non-essential visits; Develop referral/deferral plans for patients that do not need acute care	Effective surveillance: Rumour investigation and verification process may initiate from health facilities (governmental and non-governmental) by calling a dedicated number Control measures: Triage to be conducted at sick patients first point of contact with health system	Minimizing risk of spread: Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies, details of these not described Access to medications: Develop a plan to expedite medication refills, details of plan not described Communications: Develop a process for screening and triage of phone and email requests for care to limit office visits to those that require an in-person provider evaluation, details of these not described Operational continuity: Develop staffing plan to allow for expanded service hours when needed, details of these not described	Integrated planning: Not described Appropriate legislation: Not described Financing mechanisms: Not described
India	Yes	Surge capacity: Describes offloading of awareness and education tasks by	Effective surveillance: Gather accurate information from the person, gather	Minimizing risk of spread: When going to the field, carry a sanitizer/soap for hand	Integrated planning: Create a supportive environment by talking to local influencers,

		<p>recommending that HCWs Seek the support of local influencers to support community awareness campaigns, identify high risk groups and share preventive measures and encourage representative from these groups to keep communicating to others; divide village into smaller groups with 'group leaders' and keep contact details for emergency support</p> <p>Service maintenance: Not described</p>	<p>accurate information from the person: their name, date of birth, travel history, list of symptoms, record and communicate as per the surveillance format. Write the information clearly</p> <p>Control measures: ANM to support DSO/MO in contact tracing and reporting and feedback; ANM with help of ASHA, CHV and ICDS-AWW to support DSO/MO implement home quarantine, home care and supportive services; address psychosocial care</p>	<p>washing, carry masks and extra masks if required, avoid touching your face, avoid touching high touch points (door bells, knobs, support rails)</p> <p>Access to medications: Not described</p> <p>Communications: ANM, AWW and ASHA to provide information to communities re:COVID-19 as well as continuing their routine primary care duties, communicate with District Surveillance Officer, Medical Officer; State Helpline Number; Ministry of Health & Family Welfare, Government of India 24x7 helpline</p> <p>Operational continuity: Not described</p>	<p>planning community support for high risk groups, developing community networks for support, help develop community household emergency contact lists</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
Ireland	Yes	<p>Surge capacity: Not described</p> <p>Service maintenance: Remote consultations</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Initial assessment and triage over telephone to determine if they should be seen in practice or sent to a COVID-19 testing facility or COVID-19 assessment hub; suspend 'walk-in' appointments and require telephone screening; place signs at entrance</p>	<p>Minimizing risk of spread: For symptomatic patients to be seen in practice, try to see them in succession during specific hours; minimize their time spent in the practice environment and separate from other patients; patients with respiratory symptoms should be offered a mask; hand hygiene, not touching face, PPE guidance for staff, physical distancing of 1 to 2m between staff and patients and between patients</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				Access to medications: Not described	
				Communications: GPs should take all practical measures to assess and manage patients with symptoms of infection remotely using telephone and other remote communication including consideration of using video links through mobile phones/tablet/computer where practical	
				Operational continuity: Not described	
Malaysia	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: If PUI, take patient identifiers and notify the district health office Control measures: Provide good visual signages in all relevant languages; provide active screening; if PUI place patient in pre-designated waiting area; patient they can use own transport to nearest screening hospital or contact the onward referral site for transport arrangement	Minimizing risk of spread: Disinfect waiting area after patient leaves Access to medications: Not described Communications: Notify the district health office of PUI sent for further investigation Operational continuity: Not described	Integrated planning: Notify the district health office of PUI sent for further investigation Appropriate legislation: Not described Financing mechanisms: Not described
Malaysia	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Not described	Minimizing risk of spread: A special area should be set up for COVID-19 to which PUI can be directly assessed and managed by a dedicated	Integrated planning: Consult with physician-on-call of screening hospital and determine whether further review is needed or whether PUI requires

			Control measures: Screening and triage of person under investigation	team where possible; adhere to infection, prevention and control guidelines in Annex 7 and use PPE Access to medications: Not described Communications: Consult with physician-on-call of screening hospital Operational continuity: Not described	admission to admitting hospital; PUI from GP or private hospital to be reassessed by screening hospital, screening hospital will inform and coordinate referral to admitting hospital if necessary Appropriate legislation: Not described Financing mechanisms: Not described
New Zealand	Yes	Surge capacity: Not described Service maintenance: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Effective surveillance: Not described Control measures: Provision of active monitoring of non-hospitalised probable and confirmed cases is a public health unit responsibility unless there has been clear delegation to another provider	Minimizing risk of spread: Frequent handwashing, avoiding touching face, cough etiquette, adherence to standard infection prevention and control practices in primary health care; PPE for patient and staff who will be in contact with the patient Access to medications: Not described Communications: Not described Operational continuity: Not described	Integrated planning: Coordination with District Health Boards Appropriate legislation: Not described Financing mechanisms: Not described
New Zealand	Yes	Surge capacity: Not described Service maintenance: Patients with suspected, probable or confirmed COVID-19 infection, or those under investigation,	Effective surveillance: Not described Control measures: Not described	Minimizing risk of spread: PPE for patient and staff who will be in contact with the patient for more than 15 minutes and within 2 metres; dedicated room for patient;	Integrated planning: Coordination with District Health Boards Appropriate legislation: Not described

		should be managed medically according to their symptoms and clinical state. They do not need to be hospitalised unless clinically indicated and their home care situation is suitable. No description of measures of continuation of ongoing routine care		<p>general cleaning of the room following patient transfer</p> <p>Access to medications: Not described</p> <p>Communications: Primary care is responsible for informing patients and providing advice if test result is negative. Public health units will inform patients and provide information if the result is positive.</p> <p>Operational continuity: Not described</p>	<p>Financing mechanisms: Not described</p>
Nigeria	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Not described</p> <p>Control measures: Not described</p>	<p>Minimizing risk of spread: Maintain Infection Prevention and Control procedures, identify staff who will be involved in transfer of suspected case to designated treatment centre, prepare documents and assemble personal belongings</p> <p>Access to medications: Not described</p> <p>Communications: On identification of a suspect cases, the point of identification should notify the State Epidemiologist immediately through the quickest possible means</p> <p>Operational continuity:</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>

				Not described	
Nigeria	No	<p>Surge capacity: Not described</p> <p>Service maintenance: Not described</p>	<p>Effective surveillance: Maintain a screening register</p> <p>Control measures: Set up a triage station and use triage questions based on case definition to obtain history; passive screening through signs; if patient is symptomatic isolate in designated area; while in isolation provide education and notify the Local Government Area Disease Surveillance and Notification Officer (DSNO), State DSNO or State Epidemiologist</p>	<p>Minimizing risk of spread: Use of PPE including gloves, medical/surgical mask and gown; restricting staff access to isolation rooms; consider bundling activities to minimize room entry; ensure appropriate ventilation; Provide physical barriers or partitions to guide patients through triage areas; ensure appropriate environmental infection control</p> <p>Access to medications: Not described</p> <p>Communications: Toll-free number to notify a suspected case for further testing and investigation</p> <p>Operational continuity: Not described</p>	<p>Integrated planning: Not described</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
Philippines	No	<p>Surge capacity: Outlines that health care utilization is expected to rise; outlines systems-wide surge capacity plans through health care provider networks (HCPN) to optimize the COVID-19 model of care and strengthen the health system response - calls on local government units to organize HCPNs across public and private sector</p>	<p>Effective surveillance: Not described.</p> <p>Control measures: Phone triage, HCPN to designate a primary care facility within their catchment as a designated site for triaging patients either to temporary facilities for those with mild symptoms or to COVID-19 referral hospitals for those</p>	<p>Minimizing risk of spread: All health facilities shall endeavour to provide telemedicine services for patients within their HCPN to promote physical distancing whenever possible</p> <p>Access to medications: Not described</p>	<p>Integrated planning: Coordination between Department of Health Centers for Health Development and local government units to form province- or city-wide health systems to respond to a manage both non-COVID-19 and COVID-19 patients</p> <p>Appropriate legislation: Not described</p>

		Service maintenance: Not described; role of Rural Health Units (RHU), Urban Health Centers (UHC), and medical outpatient clinics as the main navigators/first contact in the HCPN and determine the appropriate facility for its patients	with severe symptoms or comorbidities	Communications: Phone triage via telemedicine if available Operational continuity: Province- and city-wide HCPNs shall ensure dedicated Human Resources for Health (HRH) for triaging, contact tracing and facility-based management of patients based on the most updated DOH guidelines and protocols	Financing mechanisms: Not described
South Africa	No	Surge capacity: Not described Service maintenance: Not described	Effective surveillance: Not described Control measures: Including screening questionnaire as part of standard triage at healthcare facilities	Minimizing risk of spread: Suspected cases to be given a surgical mask and directed to a separate area or isolation room and 1-2m distance should be kept between other patients, limit the movement of the patient and ensure a dedicated bathroom Access to medications: Not described Communications: Routine emergency department triage systems may be used Operational continuity: Not described	Integrated planning: Routine emergency department triage systems may be used for arranging transfer of patients for testing Appropriate legislation: Not described Financing mechanisms: Not described
Sri Lanka	Yes	Surge capacity: Not described Service maintenance: Remote consultations for ongoing care, as well as for triage of suspected COVID-19 patients;	Effective surveillance: Not described Control measures: Phone triage, notice on primary care facilities to make patients aware that	Minimizing risk of spread: Remote consultations for all with aim to triage COVID-19 suspected patients with minimum exposure to healthcare staff and other patients; in cases where in-	Integrated planning: Response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and admit to nearest COVID acute care isolation hospital, follow up

		discusses mental and psychological well-being and offers a conversation guide for providers	consultations will occur over the phone; passive screening through notices outside clinic; response to possible cases include informing the regional epidemiologist, medical officer or public health inspector and call an ambulance to convey the patients nearest COVID acute care isolation hospital, follow up through the public health team and inform the hospital	<p>person examination is needed, patients suspected of COVID-19 to wait in a separate waiting area; staff not to use public transport; guidance on proper attire and personal grooming for PPE use; guidance on the need for and use of PPE; guidance on hand hygiene; guidance on physical distancing within clinics and creation of separate waiting area; prioritizing patients with respiratory symptoms; removal of toys, magazines, pens and shared items in waiting rooms; guidance on facility disinfection; guidance on personal disinfection</p> <p>Access to medications: Not described</p> <p>Communications: Phone triage; communication with public health and referral hospitals</p> <p>Operational continuity: Guidelines strongly recommend that primary care physicians continue their clinical practice if they can adhere to the guidelines</p>	<p>through the public health team and inform the hospital</p> <p>Appropriate legislation: If any patient refuses to admit / home isolation, seek police/legal support in accordance with the Quarantine Law</p> <p>Financing mechanisms: Not described</p>
United Kingdom	Yes	Surge capacity: Local areas will need to consider, with their clinical commissioning group (CCG), the operating model that best suits their local context and arrangements; A key enabler will	<p>Effective surveillance: Not described - patient is triaged by NHS 111</p> <p>Control measures: Patients should be triaged remotely;</p>	Minimizing risk of spread: Practices should work together to safely separate different patient cohorts:	Integrated planning: Referral using NHS 111 for symptomatic patients; Reference to the Standard Operating Procedures for community pharmacy and community services (when

		<p>be ensuring that staff can access GP computer systems from locations other than their usual or base location</p> <p>Service maintenance: Remote consultations; dedicated home visiting services for shielded patients; access to urgent care and essential routine care should be maintained for all patients; document discusses mental health and psychological well being, advanced care planning, palliative care; COVID-19 care is not described</p>	<p>patients with symptoms of COVID-19 directed to NHS 111; clear signage and communications to direct symptomatic patients</p>	<p>patients with symptoms of COVID-19; shielded patients; and the wider population; Staff should be allocated to either symptomatic patients or other patient groups; offer 2 models - zoning or practice designation to manage face to face appointments; PPE and clinical decontamination guidance</p> <p>Access to medications: Advise practices to not increase repeat prescriptions to minimize supply chain pressure; urgent request for practices that do not accept orders for repeat prescriptions from third parties to review this policy to support social distancing</p> <p>Communications: Remote consultations and video consultations; digital isolation notes for patients' employers; home visits; phone linkages</p> <p>Operational continuity: Section on 'practice resilience' to maximise clinical capacity and provide business continuity resilience negotiated through regional bodies and commissioners</p>	<p>published) may be helpful to ensure joined up working; Home visiting can be organised at network or place level to deliver care at home to shielded patients, and this will be needed in either model; provision of non-medical support through social prescribing link workers; link with Department for Work and Pensions to accept digital isolation notes; encouraged to engage with research programs</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
United States	Yes	<p>Surge capacity: Preparing for a surge in patients with respiratory</p>	<p>Effective surveillance: Not described</p>	<p>Minimizing risk of spread: Offers infection prevention and control guidance and</p>	<p>Integrated planning: Engage local community service organizations and home health</p>

		<p>infection is included as a primary goal for healthcare facilities</p> <p>Service maintenance: Telemedicine for routine essential services; Telemedicine, patient portals, online self-assessment tools, phone calls to triage patients with symptoms</p>	<p>Control measures: Triage over the telephone and assess which patients with symptoms of COVID-19 can be managed by telephone and advised to stay home; Triage on site including visual alerts with information on COVID-19, hand and respiratory hygiene and cough etiquette</p>	<p>primary care facility preparation steps; face masks provided to patients at triage; physical distancing in waiting areas and separate areas for patients with respiratory symptoms with partitioning and signage; ask waiting patients to remain outside or stay in their vehicles; set up triage booths</p> <p>Access to medications: Reach out to patients who may be at higher risk of COVID-19 to ensure they have sufficient medication refills</p> <p>Communications: Communication with COVID-19 home care patients and their caregivers; If possible arrange daily "check ins" with COVID-19 patients managed at home using telephone calls, text, patient portals or other means</p> <p>Operational continuity: Ensure maintenance of essential healthcare facility staff and operations through flexible sick leave policies, do not require employees to have a healthcare providers note before return to work, consider staff screening, make contingency plans for absenteeism including</p>	<p>services to assist home care patients with delivery of food, medication and other goods; Work with local and state public health organizations, healthcare coalitions and other local partners to understand the impact and spread of the outbreak in your area</p> <p>Appropriate legislation: Not described</p> <p>Financing mechanisms: Not described</p>
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				extending hours, cross-training current employees or hiring temporary employees	
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For peer review only