

# The nurse can see you now.

Reflections from the South African **telemedicine** market in light of **Covid-19**.



## Summary of the main findings

- Telemedicine has existed in South Africa for a long time, but its limited **uptake in the public and private sector, and the narrow definition in the relevant regulations have restricted the development of the telemedicine sector.** Covid-19 has necessitated a use case for telemedicine services in South Africa and as a result, telemedicine guidelines have been temporarily relaxed by the Health Professions Council of South Africa (HPCSA).
- There is a momentum in favour of telemedicine, and the **Covid-19 pandemic and the resultant change in HPCSA guidelines have been catalysts for renewed interest in telemedicine in South Africa.**
- There has been sizeable growth in the demand for telemedicine services in South Africa. This is an opportune time for the regulator to gather evidence of its efficacy in meeting patient needs, or even improving their health outcomes. **It is therefore imperative that the industry be given the time and the regulatory space to develop so that this evidence can be gathered to inform future regulatory decisions.**
- Although regulation is an important factor for enabling the development of telemedicine, **reimbursement models are also a crucial factor in driving the uptake of telemedicine solutions among healthcare workers.** Telemedicine consultations are broadly reimbursed at lower rates than face-to-face consults. If this rate is too low, doctors will not be incentivised to provide these services and uptake will remain low.
- Telemedicine providers themselves have a role to play in creating an enabling environment for market development. **Greater cooperation among providers in creating systems which can be easily integrated and are interoperable is vital in designing solutions that best meet client needs.**
- There is a **need for guidelines** to align with international best practices in a way **which provides clear guidance to telemedicine service providers and healthcare workers, while providing space for greater innovation in the telemedicine market.** These guidelines need to be pragmatic and applicable to the context in which they will be applied.
- The role of telemedicine in the healthcare system is not to completely replace doctors, nurses, or other healthcare workers, but to provide care more efficiently in ways that still meet patient needs. **Telemedicine should not be considered a standalone solution but should be part of the continuum of care for patients.**



*South Africans have not experienced the full benefits of telemedicine in terms of improving access and equity to quality healthcare.*

Although telemedicine has existed in South Africa since at least 1999<sup>1</sup>, the limited uptake in the public and private sector, and the narrow definition in the relevant regulations have restricted the development of the telemedicine sector.<sup>2-4</sup> As a consequence, South Africans have not experienced the full benefits of telemedicine in terms of improving access and equity to quality healthcare. However, like in other parts of the world, Covid-19 has necessitated a use case for telemedicine services in South Africa. That is, telemedicine was seen as a solution to protect vulnerable groups and frontline healthcare workers (HCWs) from the spread of the virus. As a result, telemedicine guidelines (described in more detail below) have seen a temporary relaxation by the telemedicine regulator, the Health Professions Council of South Africa (HPCSA).

Despite this, there is concern that these concessions will be revoked, undoing the progress made over the last few months in the industry. Given the potential of telemedicine in leveraging already scarce financial resources in a now more fiscally constrained context, it is important to clarify how regulatory amendments have supported market developments, but also how they may not, potentially, go far enough. Regulations are necessary to protect against the risks associated with telemedicine, but this risk management needs to be balanced with the counterfactual risks associated with infection control and poor access to care.

More importantly, we argue that this is an opportune time for the regulator to gather evidence of the efficacy of telemedicine models in meeting patient needs, or even improving their health outcomes. It is therefore imperative that the industry be given the time and the regulatory space to develop so that this evidence can be gathered to inform future regulatory decisions.



Through extensive interviews with telemedicine industry stakeholders, including funders, service providers and users, we have produced analysis on how the Covid-19 pandemic and the changes in the South African telemedicine regulations have impacted the South African telemedicine market. Insights obtained through these discussions have been supplemented by a literature review and critical analysis of the available regulations.

Unfortunately, the views of the National Department of Health (NDoH) and the HPCSA, are not included in this report, as neither accepted invitations to engage prior to publication. This also means that **the scope of this report may be more applicable to the private health sector, as opposed to the public sector, although it contains insights for both sectors.** This brief is a packaged summary of the insights and analysis, as well as the implications for the South African health sector. A longer, more detailed report will follow this brief.

**Section 1** of this brief describes the recent changes in the South African telemedicine regulation;

**Section 2** provides an overview of the market and sentiments expressed by market players in these interviews; and

**Section 3** gives an overview of the governing regulations, and highlights areas for potential improvement.

Our recommendations and conclusions are presented in **Sections 4 and 5**, respectively.

# Telemedicine regulatory + changes triggered by Covid-19

## Is it telemedicine or telehealth?

Telehealth is defined by the World Health Organisation (WHO) as the remote delivery of healthcare services by all healthcare professionals, where distance is a defining factor, using information and communication technology (ICT) for the exchange of information.<sup>5</sup> Some definitions characterise telemedicine as telehealth services provided by physicians only<sup>5</sup>, however nowadays these terms are often used interchangeably and are even synonymous with terms like ehealth.<sup>6</sup> The primary characteristic of telehealth/telemedicine is that “information must be exchanged at a distance” between healthcare service providers and/or patients.<sup>6</sup>

The Covid-19 pandemic, the resulting lockdown, and stay-at-home orders issued in many countries around the world<sup>7</sup>, including South Africa, have made the need for remote access to healthcare more salient.<sup>8</sup> The elderly, people with chronic health conditions, and those with compromised immune systems are at high risk of morbidity and mortality if they contract the novel coronavirus.<sup>8</sup> These vulnerable groups are those most encouraged to stay home, but they are also the most in need of health services.<sup>8</sup> Healthcare workers are also at particularly high risk of contracting Covid-19 through exposure to sick patients.<sup>8</sup>

For this brief, we will primarily use the term telemedicine. There are a variety of applications which fall under this definition, and some examples are provided in Figure 1 in section 3.1. These include physicians exchanging medical information about a patient via messaging apps (e.g. Signapps and Vula), telephonic or video consultations between patients and healthcare workers (eg Counselling Hub, Stone Three, Healthforc), remote monitoring of patients (eg Quro), or even doctors consulting remotely on surgical procedures (eHealth Group).<sup>6</sup>

In section 1 we highlight the distinction made between telehealth and telemedicine by the HPCSA to reflect how their guidelines have evolved (see detailed explanation below), but their very narrow definition should not be taken to be the standard working definition of telehealth or telemedicine outside of this context.

Telemedicine has the potential to protect both vulnerable patients and HCWs, by allowing high-risk patients to be cared for at home, while reducing patient contact for HCWs, and thereby reducing the risk of infection for everyone.<sup>8,9</sup>

Telemedicine also provides an alternative healthcare access channel for individuals wanting to protect these vulnerable groups from infection, for example, younger people residing with the elderly, or those living with healthcare workers.

Existing South African regulations referred only to telemedicine specifically, not telehealth. Telemedicine in South Africa is currently regulated under the General Ethical Guidelines for Good Practices in Telemedicine, issued by the HPCSA.<sup>10</sup> The HPCSA is a statutory body established to provide for control over the education, training, and registration of practicing health professionals. Its objective and function is to develop strategic policies in this regard, and in accordance with national health policy as determined by the Minister of Health.<sup>11</sup> In addition to this, the HPCSA's role is to protect patients from any potential abuse, and to defend and provide guidance to healthcare practitioners.<sup>3</sup>

Telemedicine, as defined by the HPCSA, has a much narrower definition in South Africa compared to the definition by the WHO and the World Medical Association (WMA). In South Africa, telemedicine specifically refers to “the practice of medicine using electronic communications, information technology or other electronic means between a healthcare practitioner in one location and a healthcare practitioner in another location for the purpose of facilitating, improving and enhancing clinical, educational and scientific healthcare and research, particularly to the under-served areas in the Republic of South Africa”.<sup>10</sup> The HPCSA Guidelines define a healthcare practitioner as a person that provides health services and is registered in terms of the Health Professions Act No 56 of 1974, and also includes any other appropriate disciplines as defined in the National Health Act No 61 of 2003.<sup>10</sup>

This definition means that in South Africa, only telemedicine consultations facilitated by one healthcare practitioner with another healthcare practitioner (on behalf of the patient) are allowed. Exceptions were made if there was already an existing relationship between the healthcare worker and the patient.<sup>10</sup> The regulations thus precluded first-time consultations between a patient and healthcare worker.



## A two-phase relaxation of guidelines

In early March 2020, as the seriousness of the Covid-19 pandemic became clear, the HPCSA had not changed its position. In a media statement issued on 9 March 2020, the HPCSA said that they were aware of advertisements of telemedicine models which were in contravention of their guidance. They stated that teleconsultations without the “consulting and responsible practitioner’s physical presence” was in contravention of the HPCSA’s Ethical Guidelines on Telemedicine.<sup>12</sup> In addition, the statement also made clear that: “Treatment, including issuing a prescription based solely on questionnaires or similar non-personal methods does not constitute an acceptable standard of care”.<sup>12</sup>

When the national lockdown was instituted by President Ramaphosa from 26 March 2020<sup>13</sup>, the HPCSA made nominal amendments to their guidance. They replaced the reference to telemedicine with telehealth to reflect that their definition had broadened to include telepsychology, telepsychiatry, and telerehabilitation.<sup>14</sup> The requirement for “an established practitioner-patient relationship” remained, except for telepsychology and telepsychiatry.<sup>14</sup> However, these allowances were only for the duration of the Covid-19 pandemic.<sup>14</sup>



In response to this the South African Medical Association (SAMA) issued a statement criticising the HPCSA’s stance stating that the guidance was not evidence-based, nor was it in line with global best practices, and potentially put doctors and patients at risk.<sup>15</sup> As a result, the HPCSA further amended its stance to allow for first-time consultations between clinicians and patients without an established relationship.<sup>16</sup> These changes in guidelines, along with the imperative use case, for both patients and healthcare workers, presented by the Covid-19 lockdowns created an opportunity for the development of the South African telehealth market.



In response, many new telehealth services entered the South African market, and existing services gained increased prominence. Many of these services provided free Covid-19 screening and medical advice,<sup>17</sup> while others supported healthcare workers and patients to access care remotely.<sup>18</sup>

Figure 2 in Section 2 shows data on the change in demand for virtual doctors' consultations with one telemedicine provider. Over the six months illustrated in the graph below, the provider reported conducting 10 to 15% of their general practitioner (GP) consultations virtually. Figure 2 shows a significant increase in demand for telemedicine services from April to July 2020. However, as lockdown restrictions eased<sup>19</sup> and doctors faced connectivity challenges due to electricity load shedding<sup>20</sup>, the number of virtual consultations also declined.

Patients that used virtual consultation services also experienced high rates of satisfaction with the service. The same provider's self-reported customer satisfaction data for September 2020 showed that 86% of patients who responded to their survey reported being very satisfied that the virtual consultation addressed their medical needs or concerns. Another telemedicine provider that specialises in developing integrated applications for healthcare providers and funders, shared similar findings. Eighty percent of the consultations on their mobile application, which facilitates virtual consultations with GPs, were resolved virtually with the remaining 20% referred to an in-person GP consultation.

These are numbers from just two providers, among many others. They are a positive indication of the potential for virtual consultations to reduce bottlenecks in primary healthcare facilities while providing care which patients are satisfied with. However, it is still too soon to conclusively determine the long-term impact of the regulatory changes and Covid-19 on the South African telemedicine market.



*It is therefore imperative that the industry be given the time and the regulatory space to develop so that this evidence can be gathered.*

# The South African telemedicine market landscape: opportunities and challenges



Telemedicine has revolutionised how healthcare can potentially be delivered.<sup>21</sup> Telemedicine can be instrumental in achieving universal health coverage (UHC) as it enables healthcare workers, particularly specialist clinicians, to reach more patients in remote and rural locations that they would not normally be able to access.<sup>22,23</sup> Improvement in access to care is especially important for vulnerable groups, including frail or elderly patients, as telemedicine enables them to receive care in the comfort of their own homes.<sup>23</sup> As well as increasing access to healthcare, telemedicine plays an important role in training and supporting HCWs with additional skills, by using ICT as a teaching tool. It also enables skills-sharing and

task-shifting which helps to alleviate human resource shortages and skills-mix imbalances in the healthcare labour force.<sup>24</sup> Some cost-effectiveness studies of telemedicine have shown that certain interventions can reduce costs and improve patient outcomes, particularly in rural settings.<sup>25</sup>

In this section, we look at the telemedicine market in South Africa. We start by exploring the constituents of the market and then outline some of the key themes that arose in the series of interviews conducted with over twenty market stakeholders, primarily from the private sector.

## 2.1 The nature of South Africa's telemedicine market

The telemedicine market in South Africa can be categorised as shown in Figure 1. The size of each block represents the approximate prevalence of each category in South Africa. Many providers have solutions that span multiple categories, but we have categorised providers according to their main function.

**Direct-to-Patient (D2P) models are the most popular form of telemedicine in South Africa.**

As can be seen from the size of the block, the D2P models are the most prevalent. This is also the form of telemedicine that was most affected by the regulatory restrictions. Many of the D2P solutions were only developed and introduced to the market during the pandemic.

*For the sake of brevity, telemedicine, where information is shared from one healthcare practitioner to healthcare practitioner, is referred to as P2P telehealth, and direct doctor to patient or direct to patient telehealth is referred to as D2P telehealth in this brief.*



Care navigation is well-represented. E-triage is particularly noteworthy as this category lends itself to strategies to direct only those in need of care to healthcare facilities and additional resources. In the current private-sector model, the first point of contact with the health system is often with a general practitioner, a relatively expensive health resource. As technological advancements are made, the opportunity to utilise artificial intelligence to e-triage and support self-directed care may lead to growth in this category.

It is important to note that although the categorisations in **Figure 1** label telemedicine as a subcategory, this paper uses the term telemedicine as all-encompassing of the players outlined in the table on page 10 (i.e. including care navigation).

*In our longer report on telemedicine we share case studies of how different telemedicine providers, serving both public and private sector patients, are using telemedicine to provide high quality care. It also explains the regulatory, industry and behavioural barriers which telemedicine providers face in establishing their businesses and providing services.*

## Figure 1: Market players (South Africa)\*

Source: Framework and definitions adapted from McKinsey & Company<sup>26</sup> to contextualise SA Market

CATEGORY	MARKET DISTRIBUTION
<p style="text-align: center;">TELEMEDICINE</p>  <p style="text-align: center;">TELEMEDICINE</p>	<p><b>Synchronous:</b> Live, two-way remote interaction between patients and providers (Direct-to-Patient (D2P))</p> <p><i>e.g. Allegra, ClickDoc, Counselling Hub, Doctors on Call, DrConnect, GetTested, Healthbridge, Hello Doctor, Signapps, Stone Three &amp; Talamus**</i></p> <p><b>Synchronous:</b> Live, two-way interaction between providers and providers (Provider-to-Provider (P2P))</p> <p><i>e.g. eHealth Group, Healthforce, Phulukisa, Signapps, Stone Three &amp; Vula**</i></p> <p><b>Asynchronous:</b> Provider to patient transferring of patient information</p> <p><i>e.g. Get Tested, Healthbridge, Signapps, SystemOne** &amp; Talamus**</i></p> <p><b>Asynchronous:</b> Provider to provider transferring of recorded health history</p> <p><i>e.g. Allegra, DrConnect, GetTested, Signapps, Stone Three &amp; Vula**</i></p> <p><b>Remote patient monitoring:</b> Collection of electronic health data which is transferred for review by a remote provider.</p> <p><i>e.g. e-Mutakalo** &amp; Quro</i></p>
<p style="text-align: center;">CARE</p>  <p style="text-align: center;">NAVIGATION</p>	<p><b>Patient self-directed care:</b> Patients accessing their own information</p> <p><i>e.g. DrConnect &amp; ThinkMD**</i></p> <p><b>E-triage:</b> Tools that provide appropriate support in searching for and scheduling appropriate care based on symptoms/conditions as well as price and quality of providers</p> <p><i>e.g. DrConnect, Hello Doctor, Kimi from Momentum &amp; ThinkMD**</i></p>

\*More details on the nature of the SA market and different providers can be found in the appendix to this short report.

\*\*These providers were not interviewed as part of this study.

## 2.2 Market opportunities and challenges

From our discussions with providers, funders and experts in the telemedicine space, several themes emerged. These themes give us insight into the current state of the telemedicine market in South Africa through the experiences and perspectives of the interviewed parties. In some cases, there is little evidence to support or counter the points expressed by the participants of this study. Nevertheless, these themes aid in understanding the existing challenges and opportunities within the market.

### **There is momentum in favour of telemedicine that should be harnessed**

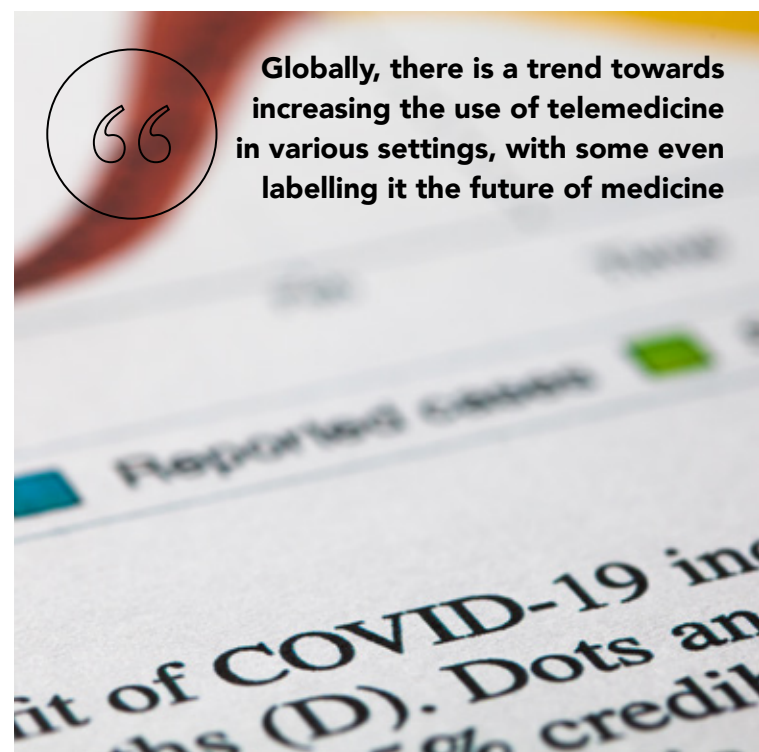
Globally, there is a trend towards increasing the use of telemedicine in various settings, with some even labelling it the future of medicine.<sup>27</sup> The participants interviewed for this report expressed similar sentiments, citing the Covid-19 pandemic and the resultant change in HPCSA guidelines as the primary catalysts for renewed interest in telemedicine in South Africa. Several of the participants launched new telemedicine offerings, while those with existing offerings saw increases in usage during the pandemic. Users were pushed to utilise telemedicine amidst the lockdown restrictions, and many providers believe that this will lead to greater demand for telemedicine and less apprehension well into the future.

However, other telemedicine providers raised concerns that the progress and uptake seen during the pandemic may be temporary. One provider noted that the uptake of their D2P solution, which had been steadily rising from April 2020, dropped in August as lockdown restrictions eased. This can be seen in **Figure 2**. Another provider, who offered virtual consults for users with Covid-19 symptoms, had over 1,000 consults a day when they could offer free Covid-19 testing, but this decreased to 100 per day once the free testing ended. However,

for most providers, usage remains well above pre-Covid-19 levels.

Some factors contributing to the growth of the telemedicine market are independent of the pandemic. One key factor highlighted by several interviewees is the retirement of older and more technology-apprehensive HCWs who are being replaced by a younger and more tech-friendly cohort. Another is the improved connectivity as smartphone access and internet access become more widespread and health system clients' familiarity with these ICTs grows.

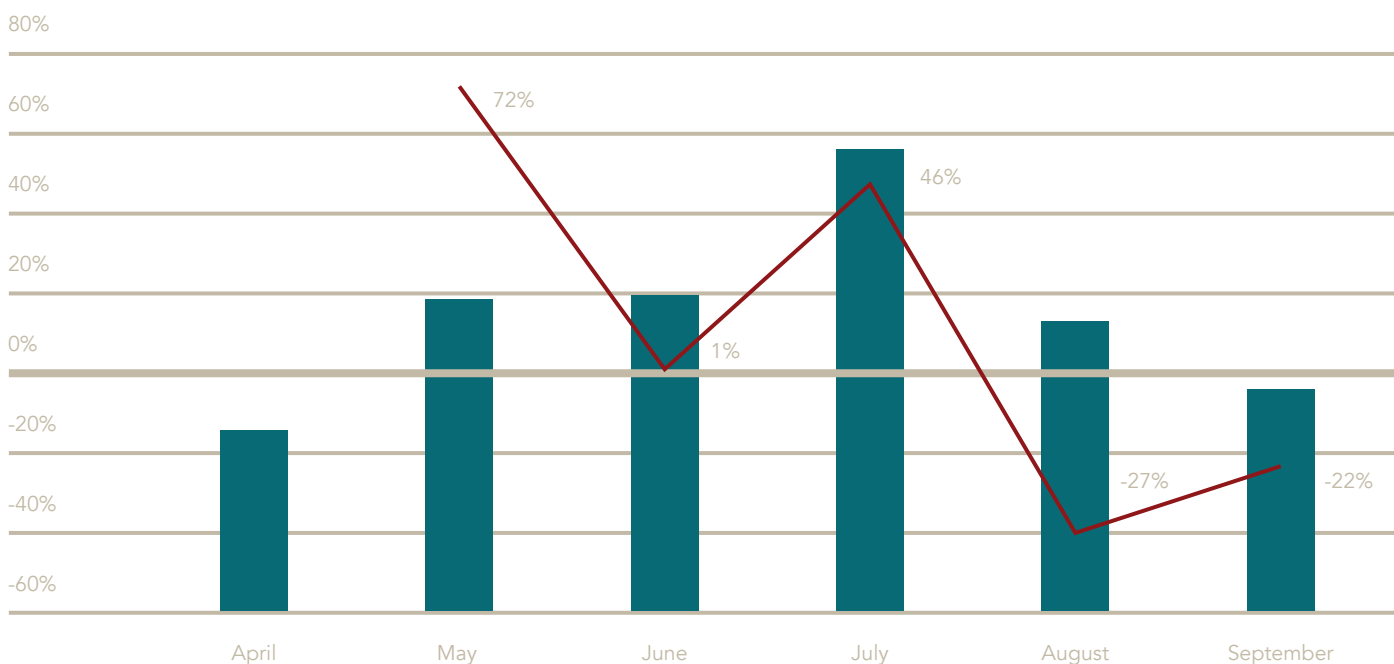
The NDoH appears to see the potential of telemedicine. One provider informed us of their discussions with the NDoH, who have shown interest in using this provider's telemedicine services. Another two providers had similarly been in discussions with provincial health departments. A few telemedicine services are currently in use or have been considered for use in public hospitals around the country. This suggests a positive future for telemedicine in South Africa.



**Figure 2: Virtual consultations conducted by one telemedicine provider from April to September 2020**

Source: One provider's anonymised data

● Number of virtual consultations ● % change from month to month




- The bars are shown to illustrate the relative number of consultations, but the exact number has been excluded
- These changes may represent several factors, including the increase in electricity load shedding and the change of season

### Appropriate reimbursement and user training are crucial in encouraging uptake of telemedicine services

Reimbursement models are a major factor in HCW uptake of telemedicine solutions. Telemedicine consultations are broadly reimbursed at lower rates than face-to-face consults. If this rate is too low, doctors may opt to not provide these services and uptake will remain low. According to the telemedicine providers interviewed, some medical schemes will only reimburse doctors at the telephonic consultation rate which is 55% of the face-to-face rate. Several of the providers disagreed with this fee structure on the

grounds that telephonic consultations are typically short and light-touch whereas telemedicine often aims to provide a more comprehensive consultation that can take as long as, or longer than, the face-to-face alternative. One funder interviewed indicated that they had created new reimbursement codes which refund doctors at 60 to 75% of their standard consultation fee. According to interview participants, teleconsultations in some disciplines, such as psychology and psychiatry, are more often reimbursed at their full rates. Although, even these have faced resistance from funders.<sup>28</sup>



## Telemedicine Solutions should deliver cost savings

The issue of reimbursement for telemedicine remains a tricky one. On the one hand, fair payment for HCWs' time is necessary to incentivise migration to the provision of telemedicine solution. On the other hand, telemedicine solutions should deliver cost savings due to reduced travel time, lower requirements for physical infrastructure and other efficiencies. In reality, delivery models are often a blend of face-to-face and virtual, meaning that HCWs still require physical infrastructure. Paying the same rates for face-to-face and virtual consultations may lock in current costs and therefore not generate cost savings for the end-user.

Reimbursement mechanisms should ideally be value-based in nature, supporting supply-side innovation, and rewarding positive patient outcomes. Paying for outcomes, as opposed to on a fee-for-service basis, creates the incentive for HCWs to reorganise to deliver quality care in the most effective manner possible. Such reimbursement mechanisms are largely lacking in the South African private sector.

Interviewees agreed that telemedicine requires buy-in and uptake from users (both HCWs and clients) to succeed and therefore enhancing user experience is central to ensuring success. Several interviewees stressed that training HCWs was vital for the uptake of their services as many HCWs are not naturally comfortable consulting virtually and show apprehension in relation to the use of technology. Like HCWs, clients may require support in learning how to utilise virtual platforms, particularly elderly users.

Several providers highlighted that clients had responded positively to their services but only one provider shared explicit data. This provider asked clients the same questions whether they had consulted a GP physically or virtually. Most key metrics performed similarly between the two, though the net promoter score (NPS) was lower for virtual consults in the first month (June) of the survey: a score of 40 for virtual consultation against the physical consultation score of 73. In August, the virtual consultation NPS was up to 74, compared to an NPS of 76 for physical consultations. 97% of clients said they would use virtual consultations again. The provider did not disclose how many clients had responded, but there had been over 10,000 virtual consultations completed when the data was shared. The positive user experience could lead to increased demand in services and if more users demand these services, then more HCWs may be motivated to embrace telemedicine solutions.<sup>29</sup>

## The market is vulnerable to indirect competition and adverse events

The interviewed stakeholders voiced challenges related to free ICT applications as a hindrance for the development of the telemedicine market. Many stakeholders interviewed mentioned the standard communication tools, such as WhatsApp and Zoom, as strong competition for telemedicine solutions. HCWs often utilise these for communication with clients, or among themselves and hence become less likely to see the need for telemedicine-specific solutions.

Interviewees raised concern around the vulnerability of the market. One provider believes the nascence of the market leaves it vulnerable to adverse events, for example, one disastrous case could lead to the entire market being over-regulated in response, or to a notable rise in the fear of telemedicine. Additionally, when markets and technology are developed rapidly, the potential risks also emerge rapidly, particularly in relation to cybersecurity.<sup>30</sup>

A point worth noting is that one provider outlined how the market was difficult and unwelcoming for entrepreneurs of colour. This may be the reason only four of the 20+ interviewees were people of colour. Similarly, there was little female representation which may also speak to the prevalence of bias or discrimination in the market. **Issues raised include:** lack of access to financing and capital; limited ability to protect intellectual property; and inadequate access to mentorship and networks. We did not investigate this further, therefore it is not clear whether these issues are worse in this market or just a reflection of the broader existing societal issues.

## Attempts to retain ownership of client data may stifle market development

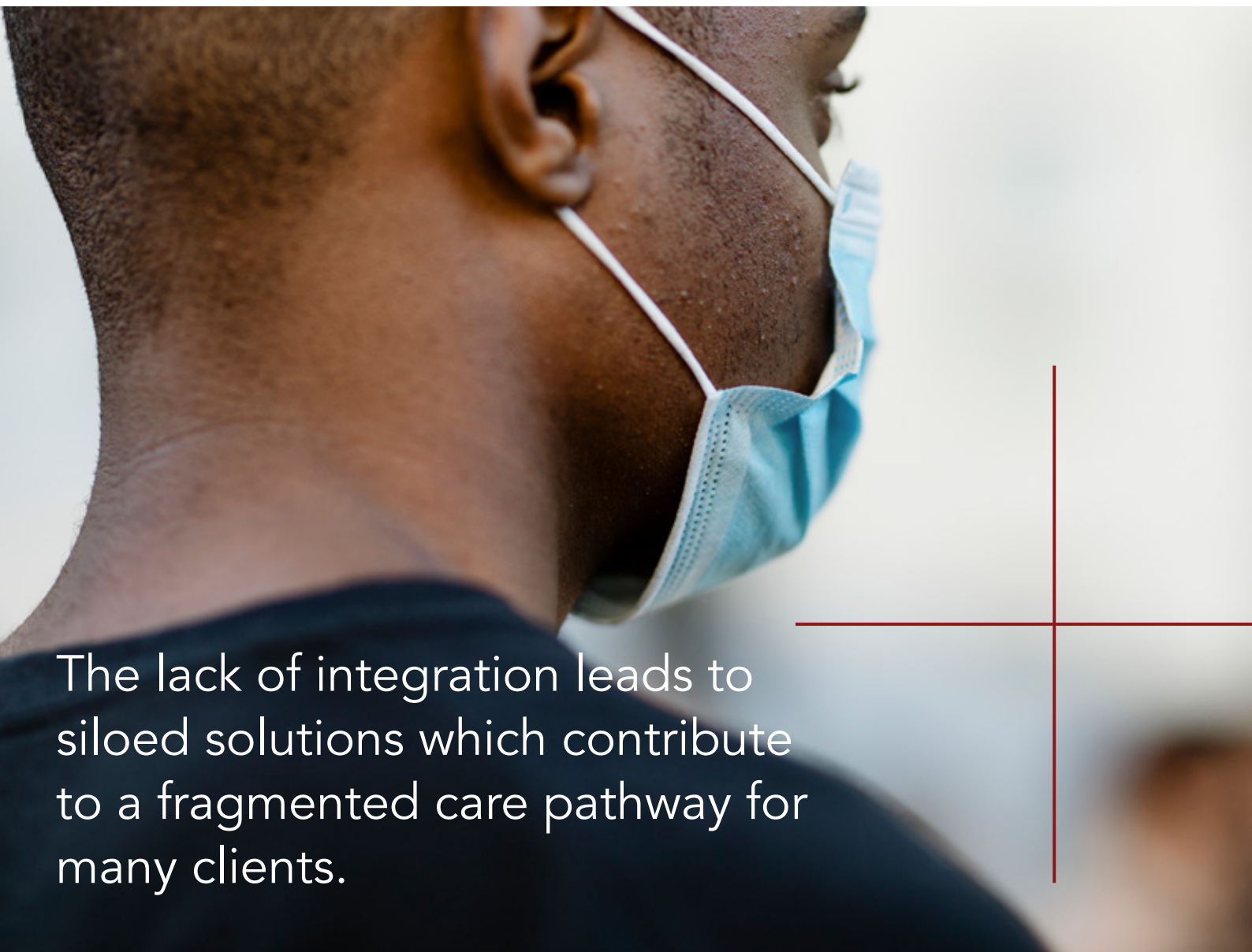
The ownership and transfer of patient data was seen to be another notable challenge, particularly in the development of a single electronic health record. Interviewees indicated that the current commercial models in the healthcare industry are not supportive of the development of an interoperable electronic health record. Some observed that the market structure incentivises health providers to hold onto their patients, which disincentivises record-sharing. This was not the only challenge in building a shared record: there were also concerns around privacy considerations when sharing patient records, and one provider stated that there was a limitation imposed by the current technology available, citing blockchain as a potential solution. These challenges fuel anti-competitive behaviour in the market.

Interviewees explained that some medical schemes have their own telemedicine solutions, in which they have a vested interest. A few providers informed us of how one medical scheme reimburses HCWs at a higher rate when they provide virtual consults on the scheme's platform as opposed to any of the alternatives. In the example that was shared with us, the medical scheme would reimburse HCWs at the telemedicine rate of 60-75% if the HCW is using their platform, otherwise, they would reimburse using the telephonic rate of 55%.

In a similar light, one provider reported that their experience in working with medical schemes is that they were hesitant to partner with telemedicine providers and were rather trying to absorb the ideas of providers into the schemes' own offerings. This is likely an attempt, in part, by funders and their service providers to retain ownership of the data and to control as much of the supply chain as possible.

A third challenge relates to the integration and interoperability of market players. The stakeholders interviewed believe that the market structure is not supportive of provider cooperation despite

cooperation being vital in designing solutions that are in the best interest of clients. Most providers interviewed had downstream integrations (down the healthcare supply chain but largely still within their own organisation) but little to no integration across organisations, particularly relative to players offering similar services. The lack of integration leads to siloed solutions which contribute to a fragmented care pathway for many clients. Some providers expressed a desire to see regulation that requires telemedicine providers to have open application programming interfaces, or APIs, to allow for easier integration.



The lack of integration leads to siloed solutions which contribute to a fragmented care pathway for many clients.

## Telemedicine has benefits but there are limits to its value

Interviewees highlighted some of the ways in which telemedicine benefits the client as well as the healthcare system. Providers stated that there were high levels of user satisfaction which signals that users are finding value in telemedicine. Some providers reached this conclusion from formal client surveys while others used less formal methods such as ad hoc conversations with their users. The literature supports that clients are equally satisfied with virtual consultations as they are with face-to-face consultations.<sup>31</sup> However, one provider noted that critics of telemedicine will often state that clients are not able to assess their own healthcare needs and hence high client ratings may not be indicative of better healthcare service.

Previous research has shown that telemedicine benefits users by increasing accessibility for clients. Healthcare becomes more financially and physically accessible through the use of telemedicine.<sup>29</sup> Offering more accessible care can improve health outcomes over time.<sup>32</sup> Telemedicine is frequently assessed against the counter-factual of face-to-face care, not against the possibility of no or less care due to access constraints.

Some providers stated that telemedicine also leads to better clinical outcomes for users because of the improved communication between HCWs. Two P2P telemedicine providers said they had seen improved patient outcomes because of hospitals using their services. For both, the conclusion came from informal HCW feedback.

Providers described how the use of diagnostic tools and P2P solutions in telemedicine enables task-shifting.<sup>33</sup> Task shifting entails moving tasks to less specialised HCWs to make more efficient use of current human resource capacity. This can ultimately lead to cost-savings for the healthcare system and

clients, and an increased ability to meet the health needs of the population.<sup>34</sup>

Stakeholders interviewed said telemedicine plays a key role in promoting preventative care which is known to lead to lower healthcare costs and improved population health.<sup>35</sup> The tele-triage providers interviewed had experienced great success in reducing the burden on the healthcare system by lowering the number of clients going to healthcare facilities. This would likely mean less congestion and better experiences at these facilities.

One provider had 80% of their virtual consultations resolved without a physical visit (this was at a time when this provider had over 1,000 D2P consultations). Another tele-triage provider, that was utilised largely for Covid-19 screening, had 97% of interactions with users resolved without a face-to-face referral. This shows great potential for telemedicine to reduce the burden on the healthcare system, particularly for triaging. Moreover, some providers believe triaging could be largely automated using artificial intelligence, thus freeing up healthcare capacity even more.

Several providers expressed that telemedicine (primarily D2P) can only support care to a limited extent. The extent to which D2P could be valuable may be stretched through the greater prevalence of wearable technology and other digital devices. However, even while highlighting the limitations, the interviewees supported the use of telemedicine (including D2P) as part of the continuum of care, although not as an independent path to care. One provider also stated that due to the low levels of health-seeking behaviour among some South Africans, telemedicine solutions need to be partnered with face-to-face consultations in order to give HCWs opportunities to assess the full health of the client.

An industry expert interviewed stated that previous unsuccessful implementations of telemedicine were not necessarily due to the failings of telemedicine but rather some shortcomings in the way it was implemented. The primary example that was referenced was when the National Telemedicine Task Team (NTTT), convened in 1998, tried to introduce telemedicine into the public health care delivery system.<sup>36</sup> The industry expert attributed the lack of success in this endeavour to a failure of the NDoH to get buy-in from provincial departments and ultimately a lack of will to truly integrate telemedicine. A lack of change management has also been indicated as a potential reason the NTTT did not succeed.<sup>37</sup>

One provider described a case where their telemedicine solution was piloted in an urban hospital although the primary value of their services is for rural

areas. Since the pilot was implemented in the wrong location, the observed results were not optimal, and this provider saw this as an inadequate representation of the potential of their solution. Lastly, another interviewee noted that variations in telemedicine uptake were influenced by the demographics of the location in which the service was provided: locations with an older population were less likely to see high uptake.



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*For telemedicine to prosper in the South African public sector, the NDoH needs to play a stronger leadership and stewardship role, positioning telemedicine as an integral element in delivering care, according to one industry expert. Without national support and leadership, uptake will continue to be stunted.*

# Market experience of telemedicine regulations in South Africa



Conversations with telemedicine providers revealed that regulation was perceived to be a major barrier to the development of the telemedicine market in South Africa. It is therefore important to unpack how the regulation may be stifling market development. In this section we outline a few of the primary issues with the HPCSA's telehealth and telemedicine guidelines.

## 3.1 HPCSA guidelines are not aligned with international best practices and principles

Table 1, on page 20, compares the guidance of the HPCSA and the World Medical Association (WMA) definitions of telemedicine, patient-physician relationship, informed consent, and jurisdiction. The WMA is an international organisation which represents physicians, of which the main aims are to, "ensure the independence of physicians, and to work for the highest possible standards of ethical behaviour and care by physicians, at all times".<sup>38</sup> The WMA does not have any jurisdiction to enforce its stance in South Africa, but its ethical standards do influence health standard and policies. In fact, the earlier version of the HPCSA's Guidelines on telemedicine were influenced by WMA 2007 Statement on the Ethics of Telemedicine, which has since been updated.<sup>3,37</sup>

Table 1, on page 20, illustrates that although the HPCSA and WMA stance are sometimes similar in spirit, the HPCSA guidelines tend to be more prescriptive. The HPCSA definition on telemedicine is narrower, an established relationship between the

patient and physician is required, and requirements for informed consent are greater and more onerous. However, the HPCSA current stance on the jurisdiction where a physician conducting cross border consultations needs to be registered is very similar to that of the WMA. Given that D2P<sup>3</sup> teleconsultations are currently no longer prohibited by the HPCSA, the stance on jurisdiction may perhaps be more lenient than that of the WMA.



**Table 1: A comparison of HPCSA and WMA guidance**

CATEGORY	HPCSA	WMA
<b>Definition</b>	<p>HPCSA explicitly defines telemedicine as using ICT between a healthcare practitioner in one location and a healthcare practitioner in another location for the purpose of delivering healthcare in South Africa (section 3.1).<sup>10</sup></p>	<p>The WMA definition explicitly allows for telemedicine to be defined as both P2P<sup>3</sup> and or D2P.<sup>22</sup> This definition is broader and allows for more use cases.</p>
<b>Established relationship between physician and patient</b>	<p>Existing guidelines only make allowances for P2P telemedicine, and D2P<sup>3</sup> telemedicine is only sanctioned where there is an established relationship between the doctor and the patient (section 4.8.1(a)).<sup>10</sup> However, the temporary amendments currently permit D2P for the duration of the Covid-19 pandemic.<sup>16</sup></p>	<p>Although the WMA does not make restrictions based on existing relationship, its statement on the Ethics of Telemedicine reads that the patient-physician relationship should be based on, “sufficient knowledge of the patient’s medical history”.<sup>22</sup> This allows for the digital transmission of patient history.</p>
<b>Informed consent</b>	<p>HPCSA guidelines require informed consent to be obtained in writing (section 4.6.2). The consent form also requires the signature of a witness (section 4.6.5(l)). A copy of the patient’s consent form should be kept with the patient’s records, and a copy shared with the patient (section 4.6.6).<sup>10</sup></p>	<p>Informed consent is required. It should be explained to patients how telemedicine differs to face-to-face consultations, in terms of how telemedicine works, how appointments may be made, and any privacy concerns should be addressed. The potential for technological glitches or confidentially breaches and confidentiality should be explained to patients. Protocols for contact during the visit and coordination of care with other HCW should be made clear to the patient. No prescriptions are made as to how this should be done. There is no requirement for written consent or copies of consent forms to be shared with the patient.<sup>22</sup></p>

**Table 1: A comparison of HPCSA and WMA guidance (Contd.)**

CATEGORY	HPCSA	WMA
<b>Jurisdiction</b>	<p>The HPCSA initial guidelines prohibit cross-border teleconsultations on South African patients by doctors that are not registered in South Africa and in their home countries. (section 4.1.3).<sup>10</sup> It does not make a distinction between P2P or D2P telemedicine here.</p> <p>However, in its 9 March media statement, the HPCSA makes temporary allowance for healthcare practitioners outside of South Africa to practice cross-border telemedicine as long as they are registered with an equivalent body in the country in which they are based.<sup>12</sup></p>	<p>WMA's stance is the physicians should only practise telemedicine in countries or jurisdictions where they are licensed. Consultations across jurisdictions should only be permitted between physicians. Therefore, the WMA's stance is not in favour of D2P telemedicine across jurisdictions.</p>



Although the HPCSA view was that the narrow definition of telehealth was in the best interests of the patient, many healthcare professionals and telehealth service providers found this limitation restricting. Stakeholders interviewed believed it stifled the development of the healthcare sector and limited their ability to expand the reach of healthcare services to underserved communities.

The HPCSA guidelines on telemedicine assume that the appropriate level of care cannot be provided using direct D2P teleconsultations without the healthcare professionals conducting a face-to-face physical examination first. Therefore, providing medical care in this way is unethical. Professor Maurice Mars, head of the Department of Telehealth at UKZN Medical School, argues that, “Technological innovations are neither ethical nor unethical; it is how they are used that renders them either ethical or not. Telemedicine, like any novel and evolving healthcare technology, should be used to promote optimal functioning of the healthcare professional, and emphasise (rather than detract from) the humanity of the health provider, and of the patient”.<sup>37</sup>

Despite how telemedicine may change the way HCWs and patients interact, it should be clear that the HCW’s ethical, legal and professional responsibility remains providing quality care, at the appropriate level to the patient.<sup>3</sup> One of the ways to support the transition to alternative models of care is to ensure that the measurement of quality of care occurs across delivery modalities.

Telemedicine allows HCWs to treat patients who may normally be unable to access treatment due to distance, thus creating an opportunity for more equitable access to healthcare.<sup>22,23</sup> In the context of the Covid-19 pandemic, telemedicine has been able to protect patients and HCWs from infection risk.<sup>8</sup> These countervailing benefits need to be part of a holistic consideration of the value or otherwise of telemedicine.

Overly prescriptive regulation leaves little room for innovation in healthcare delivery, which may leave the regulator in the very ethical dilemma they are trying to avoid, that is, providing substandard healthcare to those who may need it the most. In a country like South Africa, where health resources are limited, a more flexible approach to telemedicine may present an opportunity to improve access to quality healthcare. The current relaxation of the regulation provides an opportunity test whether telemedicine can be used to achieve this.

Telemedicine allows healthcare workers to treat patients who may normally be unable to access treatment due to distance, thus creating an opportunity for more equitable access to healthcare

“

### 3.2 Despite the prescriptive nature of regulations, the HPCSA guidelines create market uncertainty

The HPCSA guidelines are not clear on how and when the relationship between the patient and the physician is established. This is important because it sits at the crux of when D2P consultations are permitted.

The guidelines state in section 3.6 that:

“

*“The ‘requesting patient’ is the patient who requests to be treated by the servicing healthcare practitioner.*

*This applies only where there is already an existing relationship between the patient and the healthcare practitioner.”*

The length of time required for a relationship between the patient and the healthcare practitioner to be considered established is not specified. The guidelines go on to state in section 4.2.1 that:

“

*“The relationship between the patient and the healthcare practitioner is established when the practitioner agrees to treat the patient and the patient agrees to be treated.”*

Given that this can be achieved remotely, this creates even more uncertainty.<sup>37</sup> The guidelines also use language such as “should” and “must”, without a clear definition of how they should be interpreted, again leaving uncertainty around how certain stipulations should be understood.<sup>37</sup>

More flexible guidelines aligned with everyday practice would assist market development. In addition to the lack of clarity of some of the clauses of the HPCSA guidelines, many HCWs are unaware of them. For instance, section 4.9.6(a) of the guidelines state:

“

*“Patient information should only be transmitted from one site to the other and stored, with the full knowledge and approval of the patient, in line with the informed consent guidelines.”*

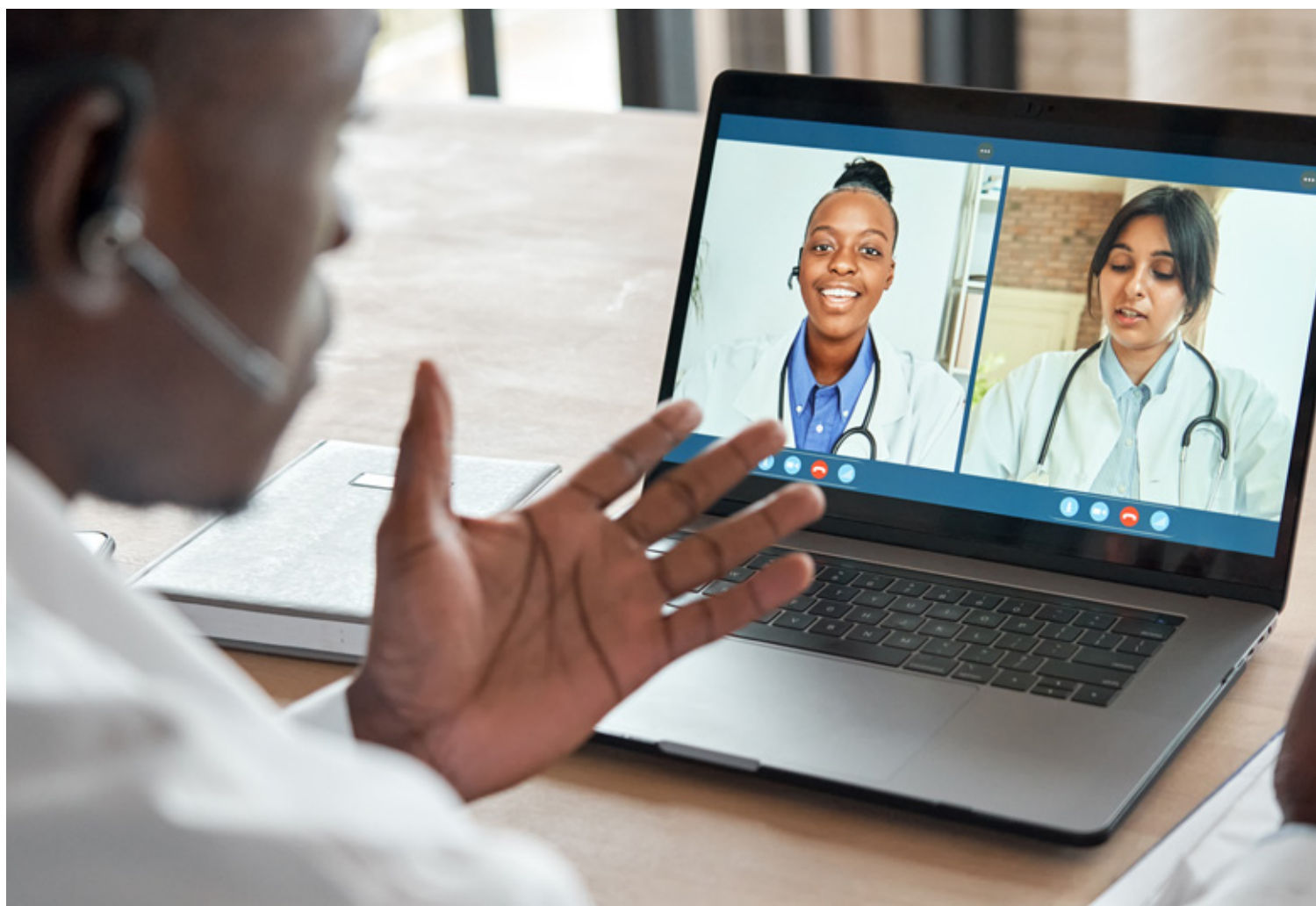
However, HCWs routinely share patient information on channels such as WhatsApp, and other apps, with the purpose of getting advice from their colleagues. According to Mars and Scott 2016, HCWs are often unaware of the requirements around patient data security, and as of yet there are no comprehensive clinical guidelines which specifically address instant messaging applications in clinical practice.<sup>39</sup>

Prior to the recent amendments to the HPCSA guidelines, there were prohibitions on teleconsultations with physicians outside of South Africa. Section 4.1.3 of the guidelines states:



*“In the case of telemedicine across country borders, practitioners serving South African patients should be registered with the regulating bodies in their original states as well as with the HPCSA.”*

One of the major motivations for telemedicine is the ability to leverage international expertise that may be in limited supply locally.<sup>5</sup> It also allows opportunities for the sharing of skills and knowledge between HCWs.<sup>5</sup> This restriction limits the potential for South Africa to leverage these opportunities, particularly for rural communities which struggle to attract and retain skilled HCWs. However, as mentioned in **Table 1**, the HPCSA has amended this requirement, so that healthcare practitioners abroad need only be registered with their local healthcare professional board. If this amendment remains post Covid-19 pandemic, it allows an opportunity for the South Africa health sector to tap into more international human resources for health.



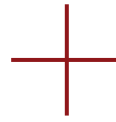
### 3.3 Where regulations are prescriptive, they should consider the environments in which telemedicine is used, and the technology available to obtain consent

HPCSA guidelines section 4.6 of Booklet 10 requires informed consent for the use of telemedicine technologies to be obtained in writing from the patient and a witness (section 4.6.5(l)). The guidelines also require that a duplicate of this consent form be kept as part of the patient record and a copy should be shared with the patient (section 4.6.6). Due to the nature of telemedicine consultations, this may be impractical.<sup>3</sup> For instance if the patient is consulting with their physician using a telephone, if they are in a very remote location, or if the patient is illiterate, or if the patient is incapacitated and is being attended by a family member consulting with a HCW, this would hinder their ability to provide written consent.

Telemedicine experts and providers who we interviewed stated that it would be better for technology providers and clinicians if the HPCSA were more practical in terms of local realities and provided clearer guidance on when and how telemedicine may be used, as well as the circumstances under which it may be used. However, this clarity needs to be balanced with flexibility and pragmatism to account for the settings in which telemedicine services are provided, particularly in emergencies.<sup>37</sup> Lower- and middle-income countries may also require greater flexibility in their telemedicine regulations to speak to the realities of a more resource-constrained environment, as well as an environment where part of the population may have lower education levels and more limited access to formal infrastructure.



# The way forward



The innovations in telemedicine which we have seen in recent months have been catalysed by the Covid-19 pandemic.<sup>37</sup> There is a need to amplify these gains by making telemedicine viable in the long term by incentivising HCWs and patients to take up these services, and by making the regulations and guidance which exist unambiguous. Market players expressed a clear need for a clarification on the currently vague guidelines. It is this paradox between ambiguity which inhibits healthy risk-taking, and overly prescriptive regulations (e.g. around patient consent) that stifle further market development. The following recommendations are drawn from our discussions with telemedicine providers, industry experts and healthcare professionals who use telemedicine services to deliver care:

- **Creating guidelines which are unambiguous and non-prescriptive, while enabling market development and protecting the rights of patients is no easy undertaking.** However, learning from experiences in other countries and incorporating the most up-to-date international standards is a good place to start. Regulations can also be illustrated with case studies to provide clarity. New guidelines should be developed in partnership with telemedicine service providers, clinicians, and telemedicine and medicolegal experts. Given that telemedicine combines both healthcare and ICT, enabling regulation must also be reviewed to ensure that it complies with the relevant ICT and data protection regulation, such as the Electronic Communications and Transactions Act (ECTA) and the Protection of Personal Information Act (POPI), among others. Existing regulations and policies should also be reviewed to ensure that they do not contain clauses which undermine the development of telemedicine.
- Telemedicine has the potential to increase access to quality healthcare while reducing costs to patients and the health system.<sup>25</sup> Therefore, it is important to **integrate telemedicine, as part of the routine practice of medicine.** This should be done through ensuring that existing regulations allow for the practice of D2P telemedicine. Telemedicine needs to form part of the training of healthcare professionals – this will serve to improve the quality of virtual consultations.
- **Reimbursement mechanisms** for telemedicine consultations need to be addressed. Telemedicine consults are not an inferior form of healthcare and providers should be remunerated for their time appropriately. HCWs need to be fairly reimbursed for their time too, or else they have no incentive to deliver telemedicine services. More broadly, reimbursement mechanisms that allow for supply-side innovation and reward quality care should be supported.

- **More widespread and systematic measurement** of quality of care will help to manage potential risks associated with telemedicine in an evidence-based manner.
- **Steps must be proactively taken to prevent the siloed development of telemedicine services.** Potential anti-competitive behaviour should be addressed, and doctors and patients should be free to choose which telemedicine providers to use. Integration and interoperability between telemedicine platforms, making it easier to share patients' electronic medical records in a POPI-compliant way, is key to ensuring this. This means that the ethical and legal quandary of who owns patient data and how it can be shared also needs to be clearly addressed in the regulation.
- **There are structural barriers that are stopping young, black and/or female entrepreneurs from entering and succeeding in the telemedicine market.** Lack of access to financing and capital, limited ability to protect intellectual property, and inadequate access to mentorship and networks, among others, need to be acknowledged and addressed.

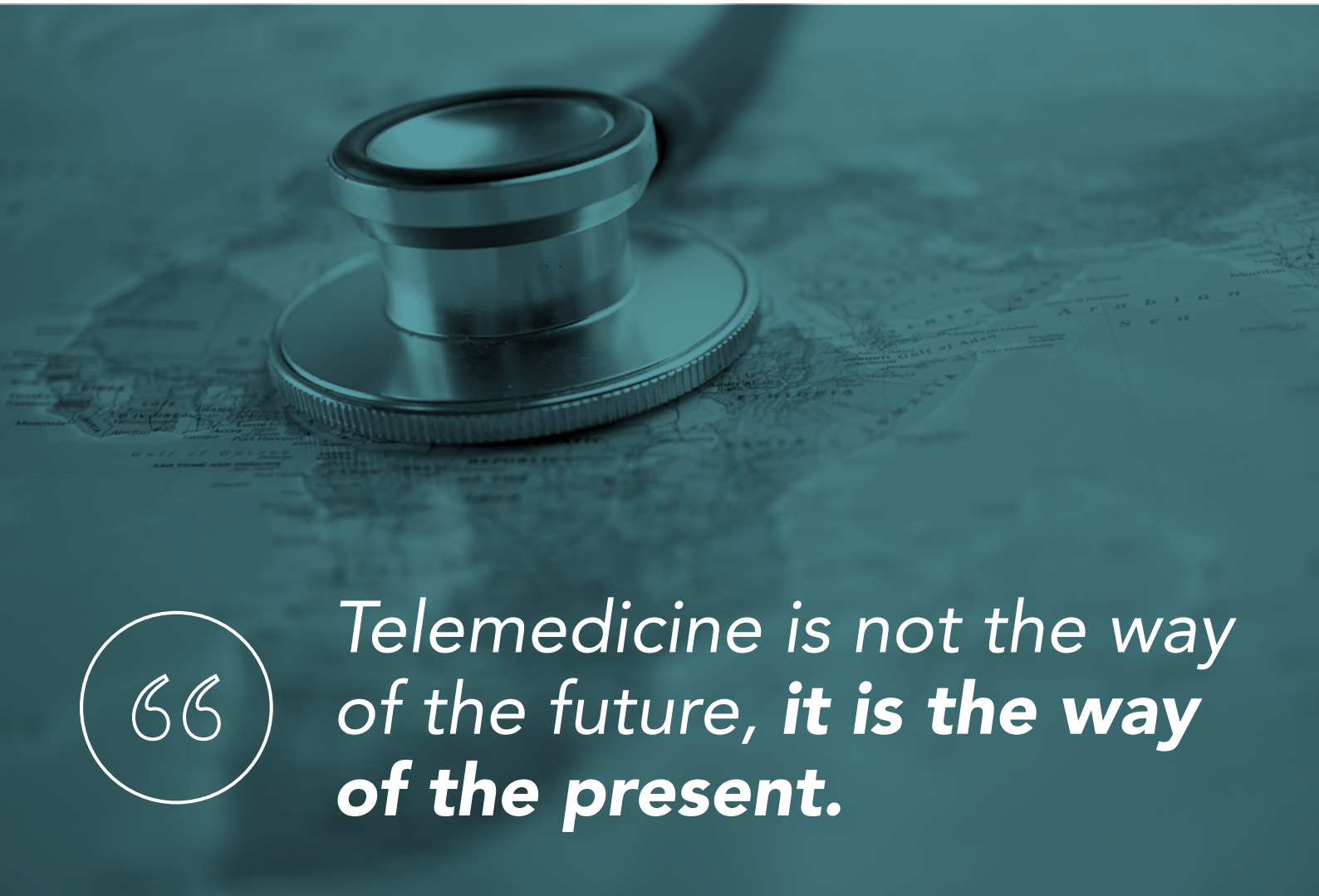


Steps must be proactively taken to prevent the siloed development of telemedicine services.

# Conclusion



Telemedicine is not the way of the future: it is the way of the present. It is one of few options available to allow our health system to do more with less. Other African countries such as Rwanda and Kenya are already using telemedicine to expand access to specialist care to rural areas and achieve UHC.<sup>40,41</sup> Although Covid-19 has necessitated its more ubiquitous use, the use cases and benefits of telemedicine have been evident for a long time before the pandemic. Until recently, the lack of leadership in telemedicine in the public sector and unpragmatic regulation may have hamstrung the uptake in South Africa. However, Covid-19 has presented an opportunity to catch up on lost time by leveraging the need for telemedicine services in the public and private sector, and this chance should not be squandered.



*Telemedicine is not the way of the future, it is the way of the present.*



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## Telehealth landscape in South Africa

The broad label “telehealth” encompasses numerous providers, offering a wide array of solutions. Here we describe the different types of telehealth market players. To do so we borrow a framework from Fowkes et al. (2020). This report refers to “telehealth” as encompassing all the below categorisations. Thus, our definition remains consistent with that of the WHO as given in the introduction. **Table 2** below outlines the categorisations and category definitions which we have utilised.

**Table 2: Telehealth provider categorisations**

SUBCATEGORY	DEFINITION	KEY TAKEAWAYS	EXAMPLES
<b>Synchronous</b>	1. Live, two-way remote interaction between patients and providers (e.g. video conference)	<ul style="list-style-type: none"> <li>• Commonly referred to as direct-to-patient (D2P)</li> <li>• Provider informs, triages, refers, or diagnoses the patients</li> <li>• Restricted by regulation until the recent changes</li> <li>• Often allows the patient to receive care remotely</li> </ul>	<p><b>Health providers</b> HelloDoctor, ClickDoc, Counselling Hub, The Medication Home Delivery Project, GetTested, Doctors on Call, Discovery DrConnect and Intercare</p> <p><b>Platform providers</b> Allegra, SignApps, Stone Three, HealthBridge</p>

SUBCATEGORY	DEFINITION	KEY TAKEAWAYS	EXAMPLES
<b>Synchronous (Contd.)</b>	2. Live, two-way interaction between providers and providers (e.g. video conference review of pharmacy prescriptions)	<ul style="list-style-type: none"> <li>Typically, one of the providers will have the patient physically present</li> <li>No known hindrances due to the South African regulation</li> <li>Often expand the scope of care that can be offered by a given provider</li> </ul>	<p><b>Health providers</b> Healthforce, Phulukisa</p> <p><b>Platform providers</b> SignApps, eHealth Group, Stone Three</p>
<b>Asynchronous (store and forward)</b>	<p>1. Provider-to-provider transmission of recorded health history (e.g. sending a lab test, X-ray or MRI, to a specialist to request a clinical opinion)</p> <p>2. Provider-to-patient transmission of patient information (e.g. a provider emailing or texting a patient to check on them in post-visit follow-up, a patient sharing photos of a skin rash for review and diagnosis)</p>	<ul style="list-style-type: none"> <li>Typically includes an electronic health record</li> <li>System is often integrated with other systems in the organisation</li> <li>Typically done when there is an existing relationship between provider and patient</li> </ul>	<p><b>Health providers</b> GetTested, Discovery</p> <p><b>Health providers</b> GetTested, Discovery</p>

SUBCATEGORY	DEFINITION	KEY TAKEAWAYS	EXAMPLES
<b>Remote Patient Monitoring</b>	Collection of electronic personal health/ medical data which is transmitted for review by a remote provider	<ul style="list-style-type: none"> <li>Most solutions that support provider-to-provider communication also support remote patient monitoring</li> </ul>	Quro
<b>Replacement Therapies</b>	Evidence-based therapeutic interventions which leverage software to prevent, manage, or treat a medical condition, in lieu of conventional treatments (e.g. pharmaceuticals)	N/A	N/A
<b>Treatment Optimisation</b>	Optimises medication, extending the value of pharmaceutical treatments (e.g. improving medication adherence, monitoring side effects of medication)	N/A	N/A
<b>Patient Self-directed Care</b>	Patients accessing their own information (e.g. website with secure, 24-hour access to personal health information)	<ul style="list-style-type: none"> <li>Patients accessing their own information (e.g. website with secure, 24-hour access to personal health information)</li> </ul>	<b>Health providers</b> Discovery
<b>E-triage</b>	Tools that provide appropriate support in searching for and scheduling appropriate care based on symptoms/ conditions as well as price and quality of providers	<ul style="list-style-type: none"> <li>Gained popularity in Covid-19</li> <li>Often like D2P solutions</li> <li>Patients get directed to the appropriate point of care</li> </ul>	<b>Health providers</b> Hello Doctor, Discovery DrConnect, Babylon, Momentum Kimi Screening



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