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Submission for the Inquiry into Telehealth Services in Queensland

Prepared for: Health & Community Services Committee

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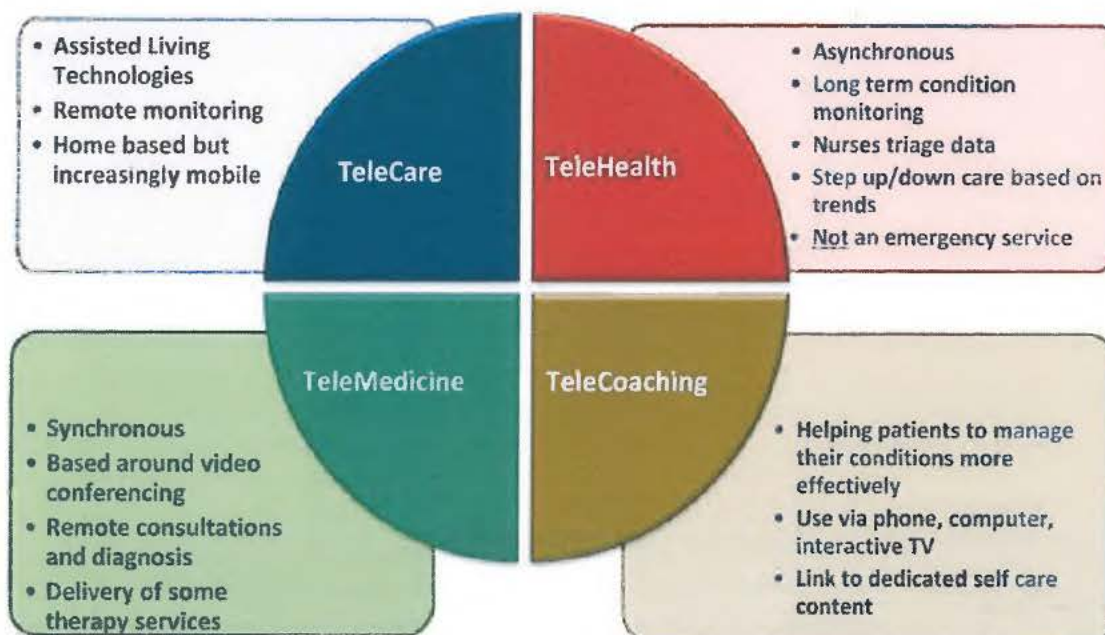
1. CSC'S TELESERVICES DEFINITIONS

The current definitions used for TeleHealth is very broad and reflects the American Telemedicine Association (ATA) definition which suggests that the terms TeleHealth and TeleMedicine may be used interchangeably¹.

It is our opinion that both from research and service implementation perspectives, this is unsatisfactory and it is at best confusing. Further, the blurring of these definitions may cause the wrong conclusions to be drawn on the impact of existing services compared to others nationally and globally.

CSC suggests a more rigorous set of definitions be used.

We have developed our own taxonomy, which provides structure to a set of remote health and care services that we have named TeleServices².



Telecare (also called 'assisted living') is the use of technology to enable people to live independently in their own homes where they otherwise might not be able to do so. Much of this technology is concerned with monitoring the person's daily life, such as temperature detectors, flood

¹ <http://www.americantelemed.org/about-telemedicine/what-is-telemedicine>

² http://assets1.csc.com/health_services/downloads/CSC_TeleServices_for_Better_Health_Bringing_Healthcare_to_the_Patient.pdf

The logo for Computer Sciences Corporation (CSC) is located in the top left corner of the page. It consists of the letters 'CSC' in white, bold, sans-serif font, set against a red square background.

detectors, gadgets that identify that a gas hob has been turned on but not lit, and falls detectors. Increasingly, many of these sensors are mobile, meaning that they can be used outside of the home too. This is particularly useful for activities such as tracking dementia patients, or people with learning disabilities so that they don't leave a specified area (geo-fencing).

TeleHealth (also called 'remote monitoring') is the use of healthcare monitoring equipment, such as glucometers for diabetics, blood pressure cuffs, weighing scales and pulse oximeters that stream data back to a monitoring nurse via a hub unit which could be a smartphone, home computer or tablet device. Patients normally take their readings on a daily basis (this can be automated or semi-automated or manual) and may also answer tailored questions concerning their mood and general wellbeing. This is triaged by smart software and then by nurses who act on any trends that they detect.

TeleHealth occurs asynchronously, that is, a clinician and a patient are not connecting at the same time. TeleHealth is patient-centric as it focuses on the day to day habits, patterns and preferences of the patient as to how their various medical conditions are monitored.

TeleCoaching (also known as 'Phone Coaching' or Health Coaching) uses nurses or other clinically trained staff to provide individual support to patients to help them manage their conditions more effectively. This can be done via the phone, webcam, interactive TV or instant messaging. Some countries such as Germany prohibit phone based clinical care, however there are examples of successful behaviour change and improved health outcomes through some form of TeleCoaching.

TeleMedicine (also known as TeleConsultation, eConsults) is the use of video conferencing facilities (or high quality webcams and increasingly Skype or Facetime) to enable consultations between patients and healthcare professionals who are not in the same physical location. TeleMedicine is also a well used mechanism for peer to peer consultations between healthcare professionals and as part of patient case conferencing. TeleMedicine is also utilised for types of home care and "hospital in the home" services such as wound or pressure sore monitoring, or stroke support.

Further, we note that TeleHealth and TeleMedicine should not only be considered for rural and remote locations and patients and their families. TeleHealth and TeleMedicine are cost effective models of care which are suitable for a wide range of patients and their families to provide more appropriate healthcare in a more cost effective manner. Further, many patients who reside in urban and suburban locations experience disabilities and inconveniences which make face-to-face clinician appointments challenging. TeleHealth and TeleMedicine are important new modern models of care which can greatly assist many health consumers in both urban and rural and remote and regional locations. For this reason, we disagreed with the former Federal Government's limit to reimbursement for TeleHealth consultations being at least 15 kilometres.

2. RISK AND SERVICE STRATIFICATION

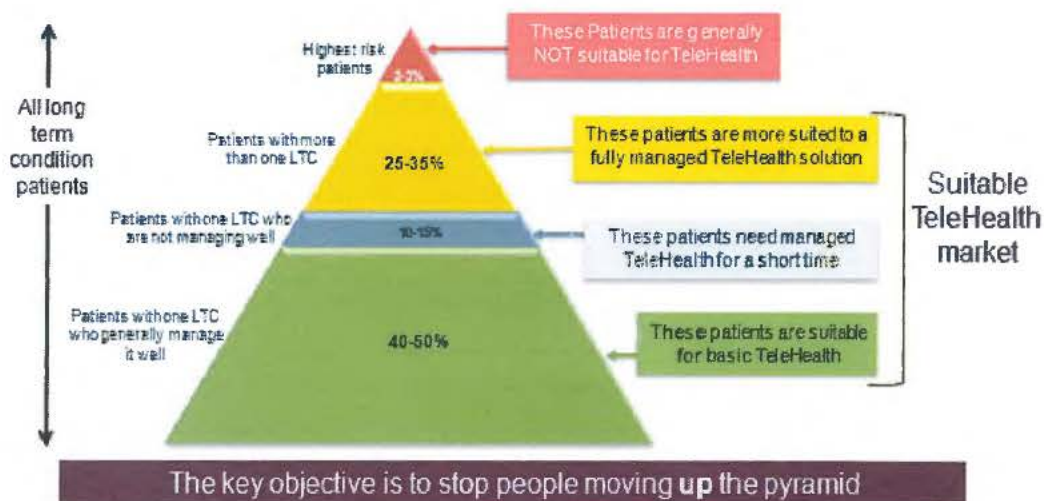
Risk-stratification models can be efficient tools for both providers and payers to screen populations and select individuals for relevant health and care programmes. These are already being used in many parts of the world to identify those who are at risk of future hospitalisation and readmission.

CSC proposes that Queensland consider the use of a refined risk stratification tool that can parse clinician records and identify:

- Which patients would be most suitable for a TeleService.
- For those patients, what type(s) of TeleService(s) would be of most benefit.
- Specifics related to the service(s) selected, such as types of monitoring device, or frequency of wellness calls.

A Stratified Service Will be Needed to Realise the Full Benefits

This pyramid shows what could be considered the totality of the market for TeleHealth – all patients with Long Term Conditions (LTCs). They are then segmented by acuity, with the most acutely chronic in the very tip.



This diagram is a representation of the so-called Kaiser pyramid. The pyramid is tailored to show only healthcare consumers with one or more long term conditions, stratified by level of acuity or need.

For some time, globally, healthcare payers/ commissioners of care (be they public sector or private sector) have been trying to stratify their patient populations, trying to identify members or patients at greatest risk of unplanned admissions or re-admissions. Being able to stratify a set of services, and then by using refined algorithms, be able to match patients to the most suitable

services for them would help referrers to identify and refer patients more quickly to the services that deliver maximum benefits to them.

Health consumers at the very top in the red area are the most severely ill, and are likely to have a TeleCare service in place if they are not already in clinical facilities. It is unlikely that TeleHealth would benefit this population cohort in terms of reducing their unplanned visits to hospital, given the state of acuity. It is possible this cohort may benefit from TeleMedicine, if they are able to access this service.

The next two bands in the middle of the pyramid which comprise approximately 50% of the long term condition population are those where TeleHealth might have the most impact in both improving healthcare outcomes and addressing the rising costs of healthcare by helping reduce avoidable hospital admissions. These are patients who have two or more chronic or long term conditions, and/or where they are not managing one or more condition very well, or where they have been newly diagnosed.

These patients may be suitable for a range of TeleServices including a full TeleHealth service with devices in their home linked to a clinical monitoring centre.

In the green section of the pyramid are patients who have a single long term condition which they are managing well or adequately. It is likely that the TeleServices that would be of most benefit to them would be TeleCoaching to help them improve their lifestyle choices, and basic TeleHealth, where they can input readings if they take any into their own mobile device using the TeleHealth app, and receive motivational text messages as appropriate. This is more akin to population health management and the key impetus of all of these services is to stop people moving up the triangle.

In considering stratification of TeleServices to match the increasing needs of patients in the diagram above, a simple framework recommended by CSC is as follows:



3. STRATEGIC SOURCING TELEHEALTH SERVICES

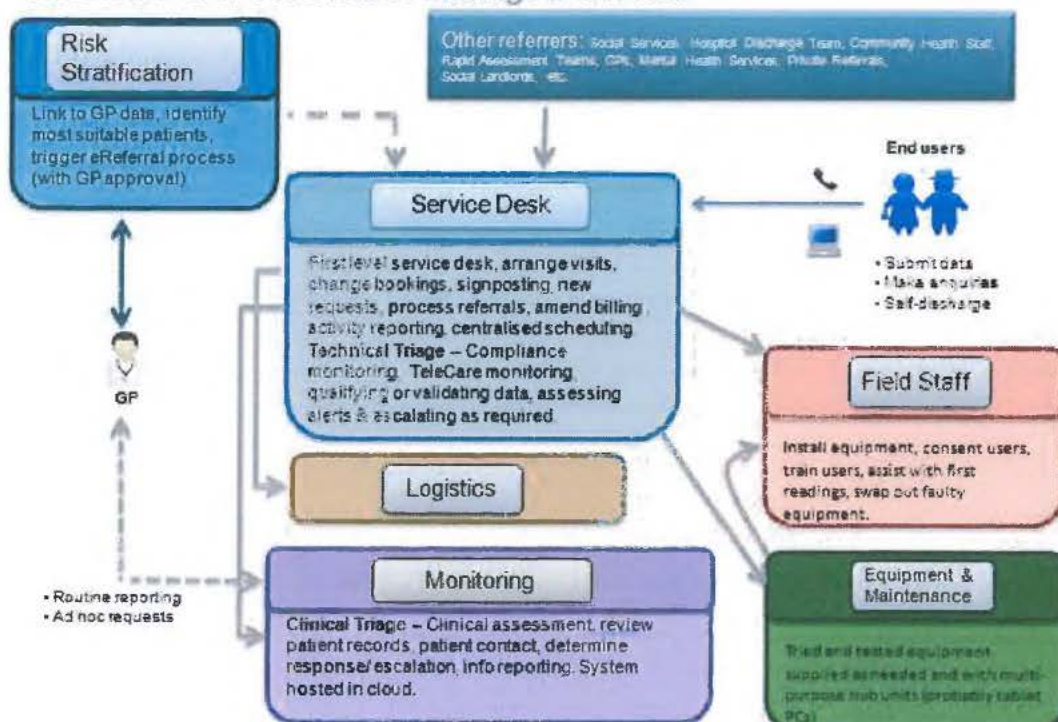
We note that the team currently providing TeleHealth services within Queensland Health has started to look into centralised logistics. In the proceedings on 5 March 2014, Ms Jan Phillips noted that “there are multiple factors that affect the take-up of TeleHealth and they include....sharing access tosupport systems such as scheduling and service directories”.

The model below shows how Queensland Health may achieve this goal using a fully managed service. In this scenario, the service centre is responsible for all non-clinical activity (except home visits to patients). This includes the arranging of home visits, first point of contact for all issues, signposting (care navigation using service directories) reporting and they could also be used to assist in cross-organisational scheduling.

The role of these staff could be extended to that of care co-ordinators, assisting patients with eReferrals and helping them to book sessions with care providers as necessary.

This fully managed service would provide everything from help in identifying suitable patients, centralised logistics and equipment provision, to care monitoring, wellness calls and technical support. The service would also provide full reporting to all stakeholders, through portals or via email (or printout) as preferred. Performance reporting on all associated providers could be delivered on a regular basis to the governance board.

Overview of a TeleHealth Managed Service



4. FURTHER REFERENCES

Listed below is evidence and reference to areas of interest to the Queensland Health and Community Services Committee.

Cost Effectiveness & Evidence of Cost Savings³

An emerging consensus is that TeleHealth programs are capable of generating a wide range of benefits. In some cases, such as the use of TeleHealth to manage chronic heart failure and depression, the approach has been shown to lead to better clinical outcomes. This is evidenced by standard metrics such as reductions in all-cause hospitalizations, reductions in mortality and improved patient-reported experience ratings.^{4 5}

In other cases, TeleHealth programs have been shown to achieve equivalent clinical outcomes, while providing benefits such as increased patient satisfaction, better care continuity and lower overall costs.

Recently, researchers in England conducted a comprehensive review of the TeleHealth literature, examining 64 different studies over the period 1988-2011. Most of the programs reported positive net effects when measured for their effect on service utilization, clinical effectiveness, cost effectiveness, social care outcomes and participant-reported outcomes.⁶

A study in Germany found that TeleHealth-supported consults for diabetics were just as effective as in-person visits for achieving reduction in patients' HbA1C levels. Additionally, these TeleHealth consults resulted in significant cost savings of approximately €650 Euros (\$850 USD; £550) per patient per year.⁷

In Colorado, the use of TeleHealth-enabled home health services providing patients with home

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http://assets1.csc.com/health_services/downloads/CSC_TeleServices_for_Better_Health_Better_Outcomes_More_Cost_Effective.pdf

⁴ Barbara J Riegel et al. Telemonitoring for patients with Chronic Heart Failure: a Systematic Review. *Journal of Cardiac Failure* Feb (2007) 13(1) 56-62.

⁵ GS Simon et al. Telephone psychotherapy and telephone care management for primary care patients starting antidepressant treatment: a random controlled trial. *JAMA* (2004) 292 (8) 935-42.

⁶ "The impact of telehealth: a review of the evidence" The Kings Fund, 2012.
<http://www.kingsfund.org.uk/topics/telehealth-and-telecare/impact-telehealth-review-evidence>.

⁷ E Biermann, et al. Are there time and cost savings by using telemanagement for patients on intensified insulin therapy? A randomised controlled trial. *Computer Methods Programme Biomed* (2002) 69(2): 137-46.



monitoring and linking them to a clinical call centre lightened the case loads of nursing staff and resulted in savings of \$1,000 to \$1,500 (€768 to €1,150; £650 to £975) per patient over the course of one year.⁸

Another study at a large academic medical institution in Boston involved 1,200 patients enrolled in a TeleHealth-based cardiac care program. According to a recent report, this program has “consistently experienced an approximate 50 percent reduction in health failure-related readmission rates for enrolled patients” and has saved the institution an estimated \$10 million since 2006.⁹

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The Changing Role of the Clinician¹²

There are many ways in which TeleServices will affect, and be affected by, the dynamics of the healthcare workforce.

Below we present five things for today's leading healthcare organizations to look out for:

1. Non-doctor clinicians will need to practice at the top of their licenses.
2. There will be an increased need for clinical staff to have and maintain proficiency with information technology and computers
3. Data literacy and quantitative skills that complement computers will become ever more valuable.
4. Healthcare increasingly will be delivered by collaborative care teams working across distances.
5. Greater patient engagement means healthcare workers will partner with patients, not just treat them.

⁸ “Scaling Telehealth Programs: Lessons from Early Adopters” The Commonwealth Fund, January 30, 2013
⁹ (Commonwealth Fund, 2013).

¹⁰ Barbara J Riegel et al. Telemonitoring for patients with Chronic Heart Failure: a Systematic Review. *Journal of Cardiac Failure* Feb (2007) 13(1) 56-62.

¹¹ GS Simon et al. Telephone psychotherapy and telephone care management for primary care patients starting antidepressant treatment: a random controlled trial. *JAMA* (2004) 292 (8) 935-42.

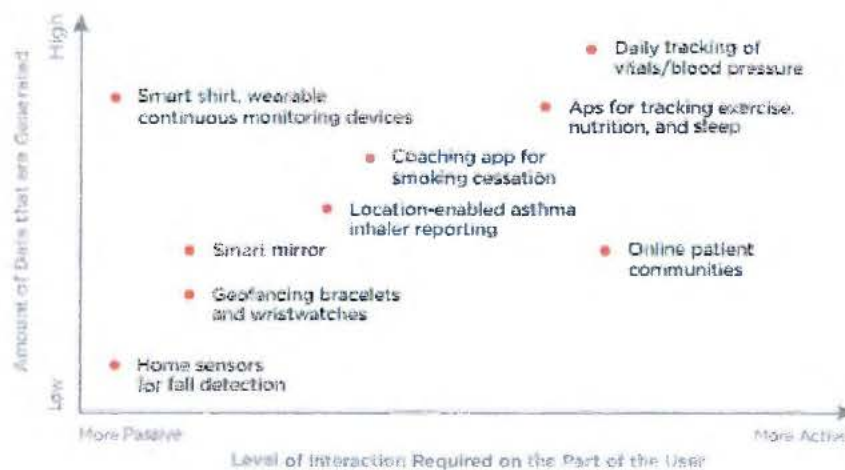
¹²

http://assets1.csc.com/health_services/downloads/Teleservices_for_Better_Health_The_Decade_of_the_Non_Doctor_Clinician.pdf

Governance & Adapting to new Healthcare and Technology Trends

It is important to understand that TeleHealth and indeed, all TeleServices are not technology or ICT services. Rather these are operational clinical services enabled by technology. Defining a telehealth strategy is essentially about defining a new health delivery strategy.

However, governance must take account of changing healthcare and technology trends and the 'consumerisation' of technology and expectations. To get a better sense of how technologies can vary in terms of the data that they generate and the "engagement demands" on the patient as evidenced below.¹³



Patient & Consumer Engagement

In a healthcare system that embraces the use of TeleServices, each of the participants and stakeholders involved in the care of a patient uses one or more technologies to ensure that the patient's health is properly monitored, coached and coordinated. Naturally, the complexity of the care surrounding a patient changes with the patient's needs. A relatively healthy, employed 25-year old male might be connected to his physician, enrolled in a basic "healthy worker" initiative at work, and have one fitness-related mobile app through which he competes and communicates with his friends in game-like fashion. By contrast, an older, retired woman managing multiple chronic conditions would likely be connected to more people and services, particularly in the area of home monitoring and the "social care" dimension involving family caregivers, social workers, and others.

¹³

http://assets1.csc.com/health_services/downloads/CSC_TeleServices_for_Better_Health_Bringing_Healthcare_to_the_Patient.pdf



Practically all other examples of technology-enabled care at a distance are essentially just subtypes of one of these main categories. For example, telestroke, teleconcussion and teleradiology are all more specialized forms of TeleMedicine, since they facilitate direct consultations between physicians, patients and specialists.

Distilling the essential characteristics of these TeleServices, the differences stand out more clearly¹⁴:

	Telecare	Telehealth	Telecoaching	Telemedicine
Core Technologies	In-Home Devices (sensors, alarm devices, monitors)	Mobile (smartphones and tablets; hub and peripherals in home deployments)	Mobile (smartphones, tablets, regular phone, webcam)	Audio & Video Teleconferencing (desktops, laptops, tablets, some mobile)
Real-Time Connection with Caregivers and Clinicians	YES (with monitoring center)	NO (except for follow-up calls)	YES (except for automated messages)	YES (with clinician)
Level of Patient Engagement with the Technology	LOW	MODERATE	MODERATE	MODERATE (when scheduled)
Level of Automation	HIGH	HIGH	MODERATE	LOW
Intended for Emergency Response	YES	NO	NO	N/A (already in real-time contact with a clinician)
Example Use	Geo-fencing for a dementia patient living at home	Prevention of readmission in a CHF patient through disease management	Advising on diet for newly-diagnosed diabetic patient	Improved convenience and access to care for a patient located in a rural area

¹⁴ http://www.csc.com/health_services/insights/100061-teleservices-for-better-health-expanding-the-horizon-of-patient-engagement