Submission to One State, One Health System, Better Outcomes Green Paper

Delivering Safe and Sustainable Clinical Services - Green Paper

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Executive Summary

This submission intends to provide an alternative dimension to support:

- The Tasmanian Minister for Health and Human Services statement of 26 July 2014 – Rebuilding Tasmania’s Health System; and
- The Government’s stated Vision – “to have the healthiest population in Australia by 2025, and a world-class health care system”.

It is our position that the Green Paper Delivering Safe and Sustainable Clinical Services released as part of the One State, One Health System, Better Outcomes in December 2014 does not present anything new nor does it sufficiently provide a broad enough blueprint for the Whitepaper due for release in March 2015..

We recognise the importance of the delivery of acute clinical services. However, the Green Paper could have encouraged respondents to make a more comprehensive study of the Tasmanian Health System in order provide meaningful and constructive discussion on the range of options that will need to be enacted to ensure a positive and sustainable future for health and deliver the Government’s objectives.

The continued focus on the Emergency Department for example within the Green Paper does little to advance the cause for real and sustained change within the whole health system. Health is not unique and should learn from other organisations, both within health and outside it, on how change can be effectively implemented and sustained over the long term.

The areas we have highlighted in this submission (e.g. Technology and data) are worthy of inclusion in a reform discussion and yet they are not discussed. Technology will be a key driver in terms of both cost and efficiency into the future. It will be the driver of sustainability by providing the integration and coordination of services throughout the health spectrum and provide the opportunity to focus expenditure where it will create maximum value for all Tasmanian health care outcomes.

It is our submission that more work is required if the White Paper is going to deliver the blueprint and therefore the innovations required to meet the Vision for having the healthiest people in Australia by 2025.
Introduction

We have reviewed the Green Paper and wish to provide the following joint submission to the paper.

The Green Paper was overall disappointing. It fails to encapsulate or herald the level of innovation, imagination and transformative change needed to successfully deliver health services and their delivery in Tasmania. To achieve the Vision of having the healthiest population by 2025 (a mere 10 years away) and ensure the long term sustainability of the Vision, a paradigm shift in health care services and its delivery is required. It is our view the content of the paper does not reflect that Vision or introduce the framework required to deliver it.

There is no framework contained within the paper that enables the reader to understand the correlation between the discussion points, the questions raised in it, and the espoused Vision (i.e. there is no clear line of sight).

The discussion points identified in the paper are limited in nature. They do not include the degree of rigor and supporting information that enables one to understand the impact of the changes being proposed on the health system. Nor do they provide any details of demonstrable benefits and/or savings that may be achieved by their implementation.

Green Paper Analysis

It is not our intent to provide a detailed analysis, or provide detailed feedback to the consultation questions here; however the following key points are made.

Transformational Change

Organisations do not change; people change. Research consistently demonstrates that the key contributors to change program success are:

- Active, visible and accessible executive sponsorship;
- A structured change management approach;
- Frequent and open communications on the need for change;
- Dedicated resources for change management; and
- Employee participation.

Yet the Green paper ignores the people side of change from both an organisational and an individual Change Management perspective. This submission does not intend to elaborate
further on Change Management. It intends only to highlight that if the critical importance of Change Management is ignored then the outcomes intended from the DHHS organisational re-structure, the transition to a single Tasmanian Health Service and the other elements of the health reform package will almost certainly fail.

Information and Communication Technology

It is disappointing that the Teleconference Network (described as under-utilised) is the only reference to the use of Information and Communication Technologies (ICT). The significant role that ICT will play over the next decade should have been recognised in the Green Paper and probably worthy of its own supplementary paper. Further discussion on the role of ICT is provided later in this submission.

Analytics and Performance

The Green paper fails to recognise the value of analytics and in particular the emergence of new technologies such as machine based learning and decision making (e.g. Big Data) to drive efficiencies. DHHS collects a plethora of electronic data but transforms only a fraction of this into meaningful information, and then in only a fragmented way. Currently even more data is collected using paper records and this will almost certainly be replaced by electronic data capture methods over the next decade. Further discussion is provided later in this submission.

Role Delineation

Much is made within the White Paper of role delineation and at a simplistic level this may add value to the reform process, but specialties and functions within the hospital environment rarely exist in isolation and require a range of services to support the delivery of care. Simply centralising a function to gain critical mass may mean that other downstream support services, which are required to support the delivery of care, may not have that critical mass or may not have the capacity to support it.

Nothing New

The Green Paper proposes nothing new. For example, an elective surgery access policy currently exists (Improving Time to Treatment, Tasmania’s Elective Surgery Access Policy). Released in 2009 (and still published on the DHHS internet site) the broader and better question to be answered is “why has this failed?”
Accountability and Performance Management Framework

We agree that an Accountability and Performance Management Framework is required to develop, then implement, monitor and report on performance. This has been identified as one of the key elements of the health reform package.

The Green Paper appears to imply, for example, that the simple addition of more Emergency Department measures will somehow improve accountability. Surely accountability for performance already exists so the issue would appear to be one of accountability management rather than the introduction of more performance measures.

The Green Paper does not adequately address how the health system will leverage off the benefits of any performance or efficiency gains. There is a risk that a capacity increase from an efficiency gain will simply be replaced or absorbed by an increased demand or utilisation of the service (i.e. you take someone off the elective surgery waiting list only to replace them with someone else).

Limited Focus

The Green paper focuses primarily on hospital services (role delineation, elective surgery waiting lists, emergency care, re-design of clinical services etc.) Having a greater focus on primary care and community care and shifting the balance of care provision from “hospital to the community” are identified as key priorities in the Executive Summary, yet only make up a combined total of one page in the Green Paper (pages 21 and 22) and a single supplementary paper.

There is no discussion on avoidable hospital admissions, health care worker and skill shortages or the affordability of health care over the long term.

It is our view the White Paper must be a comprehensive and broad viewed ‘Health Service Delivery Blueprint’ that underpins the Government’s Vision.
Achieving the Vision

For the vision to be achieved by the 2025 time frame, a different approach and radical level of thought about how Tasmania manages and delivers health care is critical.

The following points represent a few of the actions required to deliver on the Vision. The Operationalised Vision must:

- Be fully defined so that the ‘Healthiest Population in Australia’ is understood and shared by all Tasmanians;
- Engage all members of the Tasmanian population even those who do not currently need or use public health services;
- Have detailed implementation strategies and frameworks with appropriate milestones;
- Include the flexibility to undertake active interventions throughout the planning period to accommodate and manage the impact of identified detrimental long term impacts;
- Adopt an integrated long term planning focus i.e. 20 years which is supported by all Tasmanians and their political parties;
- Sustain the Vision as the driver of the health of Tasmanians over the long term;
- Align and integrate State and Commonwealth health and social policies; and most importantly
- Create a baseline Tasmanian Population Health Profile against which achievements and improvements can be measured.

The high level diagram below illustrates the relationship between some of the factors that are necessary to deliver on the Government’s Vision. Many factors are inextricably linked and of those of health care services is but one.

It is not our intention to discuss all of these factors further as we perceive many of them are outside the scope of the Green Paper. They are mentioned here for completeness.
Health Sector Reform

It is our submission that much more can be done to improve the cost effectiveness and sustainability of health services within Tasmania. We have identified the following key areas which can support and drive improvements across all sectors of health care. They are:

- Innovation;
- Technology;
- Data Management and Analytics;
- Clinical Performance Outcomes;
- Cost Efficiency and Sustainability; and
- Population Health Strategy/Objectives.
Innovation

Innovation is adopted by many organisations as a key strategy and driver of change. If implemented effectively it can support the paradigm shift required in health services delivery. For the Vision to be delivered, Tasmania must step outside its comfort zone and embrace new ways of thinking. Einstein said

“We cannot solve our problems with the same level of thinking that created them”.

There are many types of innovation including breakthrough, disruptive and incremental. It is easy to be side-tracked into pursuing only one of these types. An “innovation death spiral” occurs when an organisation restricts its resources at incremental innovation. This is the primary risk of the Green Paper, it only supports Incremental Change and does not encourage the opportunity for Breakthrough Innovation or Disruptive Innovation. Innovation needs to be set up for success; the best thinking tapped into, intelligent risks taken, intelligent failure rewarded and the longer path to innovative success not over-burdened by fiscal fear.

Adopting an Innovations Program will provide one enabler for the paradigm shift that must occur at both a cultural and process level within health service organisations. It will create new values through new approaches to health care across the community. Collaboration with industry partners to design innovative methodologies and processes may be one means of facilitating such a program. The small stable population of Tasmania combined with its island geography offers the potential to work collaboratively and smartly with both public and private industry partners.

Technology

A recent survey\(^1\) in the United States found:

- 38% of people looked up health information online;
- 27% used their care provider’s website;
- 25% used mobile health applications;
- 26% used a website to make appointments, check laboratory results or manage prescriptions;
- 22% used a device that tracked their health patterns; and
- 22% stored health information electronically.

\(^1\) Source: Medcity News August 9, 2014 6:59 am by Stephanie Baum
The level and utilisation of technology innovation by health consumers demonstrates that there is an opportunity to leverage new more efficient health tools, applications, interactions and environments.

The role of technology in the Green Paper has been underestimated and it should form a vital element of the reform process. Yet technology has been almost entirely omitted from the discussion. Information Technology and Communications (ICT) is no longer a technical function but a significant business enabler. Bill Gates has been quoted as saying:

“We always over estimate the change that will occur in the next two years and under estimate the change that will occur in the next ten. Don't let yourself be lulled into inaction”.

Technology will be the enabler to achieving the degree of coordination and integration required to support the move from front-line acute hospital based care to intelligent community based care. Managing dispersed groups and individuals in meeting their health care needs and challenges will be critical if this new paradigm is to be achieved.

The implementation of technologies to support health services reform should not be rushed. However, their exclusion from the Green Paper and therefore more broadly from the healthcare reform agenda indicates a low level of understanding of the opportunities that current and future technological innovations will bring to achieving the Vision. There is a whole new world of technology coming that will assist in driving health reform and a different business model. Several examples of how technology will promote the Vision follow.

**Mobile Communications**

Some of the world’s largest companies are investing large sums of money into mobile communications. Communications Technology will continue to rapidly expand and develop over the next decade. There are two key areas applicable to the health sector:

**Mobile Applications**

A new world of health technology will be driven by the increasing acceptance and use of mobile applications to:

- Engage the population in their own health care and its management; particularly health care users that do not currently use the public health system;
- Provide the opportunity for direct communications and interactive data exchange with all Tasmanians;
- Provide the opportunity for direct communications and interactive data exchange between clinicians and their health care clients;
- Improve and speed up health care delivery by providing real time access to information;
• Engage with patients and improve in-home and community care;
• Reduce the cost of health care provision (potential) and
• Enable advanced health data analytics/informatics to be conducted.

As the availability, capacity and capability of smartphones and other portable devices continues, this technology will provide huge opportunity to improve health care.

**Wearables**

Wearable technology devices are being developed and inserted into our everyday lives. Wearables offer new opportunities to engage the public in collecting real time information about their lives, activities and healthcare preferences. Wearables in tandem with mobile communications will be an enabler for health services to provide proactive health care.

Within a hospital context, wearables offer the freedom and opportunity for clinicians to receive real time patient physiological data and make decisions about care regardless of where they are.

A key element of the reform agenda is to move care to the community sector. Wearables and mobile technology offer a range of options to enable continuous monitoring of a range of a person’s data in home whilst ensuring a high degree of safety and security.

**Social Media**

Social Media offers new ways in which health care may be provided and could emerge as a mechanism by which to:

• Engage the health care seeker;
• Communicate more broadly with individuals or groups with similar needs regarding health care and the community in general regarding health care.
• Connect people together regardless of geographic location creating an environment for sharing experiences and stories, providing a support network and decreasing social isolation.

**Telehealth**

Whilst Telehealth is discussed in the Green Paper, this technological tool was not sufficiently explored. There are extensive potential efficiencies and cost savings that might arise from its use.
Data Management

In the Green Paper data is only mentioned twice in the context of strengthening our public and private partnerships:

- Share data, enabling better understanding of the State’s elective surgery activity; and
- Improve data sharing and performance monitoring.

In the near future there will be widespread access to cloud computing, higher data speeds and more storage capacity. Health has the opportunity to create its own data cloud enabling Tasmanians to upload their own health data whilst allowing the Department the opportunity to analyse this data in real time and provide proactive feedback to the individuals.

A strong Data Management Framework to underpin and support the volumes of electronic information being collected continuously will be necessary. This Framework must be capable of integrating a wide range of data types (structured and unstructured) from across disparate input sources in order to provide a single patient or citizen health status view at any point in time throughout their life.

This Framework will be fundamental in ensuring high quality data integration is achieved to support a range of health initiatives, e.g. health profiling.

Analytics – Machine Based Learning and Supported Decision Making

Underpinning the adoption of a technological strategy to health care reform is the application of advanced data analytics. This includes big data, data mining and spatial analysis to manage and improve processes and performance in real time and at all levels within the health care system.

Big Data

Big Data in particular now offers a real opportunity to drive a paradigm shift in health care through the ability to analyse vast amounts of structured and unstructured data in real time.

The Australian Public Service – Big Data Strategy states:

“Government policy development and service delivery will benefit from the effective and judicious use of big data analytics. Big data analytics can be used to streamline service delivery, create opportunities for innovation, and identify new service and policy approaches as well as
supporting the effective delivery of existing programs across a broad range of government operations - from the maintenance of our national infrastructure, through the enhanced delivery of health services, to reduced response times for emergency personnel.”

The following highlights the difference between the traditional approach to process optimisation and an algorithmic approach using big data:

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Algorithmic</th>
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<tbody>
<tr>
<td>Analysis</td>
<td>Analysis</td>
</tr>
<tr>
<td>Off line</td>
<td>Real Time</td>
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<tr>
<td>Based on point data within the process</td>
<td>Combines history with context</td>
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<tr>
<td>Aggregated data across silos</td>
<td>Automated analytics with feedback</td>
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<tr>
<td>Uses past data</td>
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<tr>
<td>Time lag to implement change</td>
<td>Continuous Improvement</td>
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<tr>
<td>Expensive &amp; lengthy projects</td>
<td>Incremental updates to process</td>
</tr>
<tr>
<td>Static rules with limited flexibility</td>
<td>Fully adaptable to new context</td>
</tr>
<tr>
<td>Limited by human resources</td>
<td></td>
</tr>
<tr>
<td>Structured Data</td>
<td>Structured and unstructured data</td>
</tr>
<tr>
<td>Reporting results</td>
<td>Insight driven process optimisation</td>
</tr>
<tr>
<td>Human decision making</td>
<td>Augmented human decision making</td>
</tr>
</tbody>
</table>

An example of how big data is now being used in the Australian health context is provided in Appendix 1.

**Spatial Technologies**

Location has always been a key input in the decision making process. Spatial information systems can provide a unique way to integrate spatial and non-spatial data from disparate systems within an organisation without the need to build bigger data warehouses and to manage, query, analyse and visualise information. Complex analyses that utilise the spatial components (location) can be integrated with non-spatial components in ways that other information systems cannot emulate.

The application of spatial technologies within the health environment, especially given the push to more community based care, would facilitate the integration and coordination of health care delivery down to the household level. Further, this technology could facilitate:

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2 Source: The Australian Public Service Big Data Strategy – August 2013
3 Source: Oracle - Emergence of the Intelligent Enterprise - Kevin Walsh CTO Oracle Asia R&D
• The management of groups of individuals with similar attributes who are dispersed around Tasmania;
• Patient tracking; and
• Equipment tracking.

The addition of location to both Big Data and Data Mining analyses would enhance the outcomes and decisions made from this technology.

The Tasmanian Health Profile

It is our view that the Government’s Vision must be supported by the wide introduction of virtual health profiling, wherever possible, at an individualised level across the Tasmanian population. It is this sort of horizontal and vertical profiling that would underpin long term planning within the health sector and ensure that its limited resources are most efficiently allocated. Further, these profiles would form the foundation upon which Government and health care providers could undertake active interventions to minimise long term impacts on both health and individuals.

Every Tasmanian could have their own health profile built upon the pre-existing health and non-health factors. Included in the profile would be for example:

• Race/Ethnicity
• Age
• Education
• Employment status
• Current health indicators
• Past health history
• Genetic/family health history
• Known environmental factors
• Past and current health behaviors
• Other health factors

The Tasmanian Health Profile could encourage all Tasmanians to identify their likely health outcomes into the future. It could serve to encourage and stimulate many of us to improve our profile rating thereby increasing health quality/outcomes and life expectancy.

The linking of profile driven data, data collected in real time from the individual to spatial location will enable better targeted prevention strategies and more accurately targeted health services.

Much of the data required exists now. We are boldly suggesting that Tasmania starts to individualise this data, create a baseline data set and continue to actively use the Tasmanian Health Profile to measure the achievements and progress of the Government’s Vision to “have the healthiest population in Australia by 2025”.
Future Opportunities

There are many other technological innovations that will radically change the way in which health care will be delivered in the next decade. While not fully covered here, they deserve mention and include:

- Robotics
- Virtual Hospitals
- Smart Hospitals
- 3D/4D printing
- Nanotechnology
- National Broadband Network (NBN)
Appendix 1:

CSIRO and Emergency Department Prediction

The CSIRO⁴ has developed software that predicts how many patients will arrive at emergency, their medical needs and how many will be admitted or discharged.

The Patient Admission and Prediction Tool (PAPT) was developed at the Australian eHealth Research Centre by CSIRO in partnership with Queensland Health, Griffith University and Queensland University of Technology.

Contrary to conventional wisdom that emergency patient volumes are unpredictable, the number of admissions per day can be predicted with remarkable accuracy.

PAPT uses historical data to provide an accurate prediction of not only the expected patient load but their medical urgency and specialty and how many will be admitted and discharged.

"Initially we used the Patient Admission Prediction Tool at our weekly bed meetings to plan for the next week. We now use the forecasts up to 6 months in advanced planning so we can be prepared for events such as winter influenza. This has led to much better hospital planning of emergency and elective admissions." (James Lind, Director of Patient Flow, Gold Coast Hospital).

CSIRO are currently investigating how PAPT can be used to help run an entire hospital; to reduce ‘bed block’ in emergency departments, minimise wait times for elective surgery and predict admissions of patients with chronic diseases.

PAPT is currently in use in several Queensland hospitals where it is being used to assist with:

- Bed management;
- Staff resourcing; and
- Scheduling of elective surgery.

For patients the system has delivered improvements such as:

- Timely delivery of emergency care;
- Quality of care; and
- Less time spent in hospital.

PAPT also received the 2012 CeBIT Business Award for Innovation.

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⁴ Source: CSIRO – 4 August 2011 – Updated February 2014