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# RE: Legislative Council Sessional Committee Government Administration: Sub-Committee on Acute Health Services in Tasmania.

Dear Hon Rob Valentine (Chair), Hon Kerry Finch MLC, Hon Ruth Forrest,

From pressured, marginal, and slow care....



Image 1. Royal Perth Hospital circa 2008

...to professional, quality, and timely care

**HEALTHCARE REFORM** 



Image 2. Royal Perth Hospital circa 2011

Thank you for the opportunity to present in person to the committee and to provide a submission. Our submission is structured as follows:

- 1. Background context
- 2. Comments addressing terms of reference #2
- 3. Comments addressing terms of reference #6
- 4. Conclusion

#### **Background context**

Healthcare Reform Consulting (HRC) is a niche consulting firm born in 2012 from the successful implementation of Royal Perth Hospital and WA Health's Four Hour Rule Program. Kate Brockman was the Program Manager for RPH's reform program, and on forming HRC provided services to NSW Health, Tasmanian Health, and Canberra Hospital (this information is in the public domain), as well as several other public and private hospitals. The main objective of this work has been to improve access to acute services in the public sector.

Our insights and support saw RPH improve from 42% NEAT to 90% in three years despite a 27% increase in ED presentation volume with no additional resources or facilities. Independent analysis of WA's 4HR program indicated it saved 80 lives at the three major metro hospitals during the

initial three years. NSW saw a whole of state improvement in NEAT performance from approximately 61% to 76% in 12-18 months.

Another public tertiary hospital we supported improved NEAT from 52% to 75% in 5 months and saw significant additional ward capacity created<sup>1</sup>. HRC was contracted to support HSI/UTAS from May 2014 to Sept 2015 providing diagnostic and solution implementation support to HSI/UTAS and hospital executives. Additional support was provided to RHH and LGH outside the HSI/UTAS contract. Our key diagnostic reports for RHH, LGH, NWRH and MCC are in the public domain in a redacted form. Tasmania has not seen the lift in performance that other hospitals and states have seen with their acute services reform programs and we feel competent to provide relevant information to this Sub-Committee in relation to these matters.

**Time = volume**. We'd like to discuss one final point before addressing the terms of reference. In systems where flow is a major consideration (e.g. patient flow in healthcare, passenger flow in airlines, viewer flow in cinemas), time equals volume. Consider the graphic below showing a notional hospital ED seeing 240 patients per day, which for illustrative purposes arrive in groups of 10 at every hour on the hour (i.e. 10 arrive at 1am, then 10 arrive at 2am, and so on). Note this is representative of RPH's daily volume in 2008.



In the above example with a four ED length of stay (LOS) the patients that arrive at 1am leave at 5am, the patients arriving at 2am leave at 6am, and so on. With this context it is self-evident that you will have 40 patients in the ED at any time throughout the day as long as 10 arrive per hour and stay for 4 hours. Now consider the impact of reducing the ED LOS from four hours to three hours in the diagram below.



It should be self-evident that there are will only ever be 30 patients in the ED at any one time with patients arriving a 1am now leaving at 4am – one hour earlier than in the case above. Now consider the impact of reducing the ED LOS further to two hours as shown in the case below.

<sup>&</sup>lt;sup>1</sup> A retrospective study indicated that 60 beds – or two wards – of capacity was created by through implementing long ward length-of-stay operational management processes.



Again it should be self-evident that there will only ever be 20 patients in the ED at any one time. As I mentioned above, a key point in flow oriented service operations is that <u>time = volume</u>. This is as true in the ED where time is measured in hours, as it is on the wards were time is measured in days. We indulge the Sub-Committees time with this explanation for two important reasons.

Firstly, to reduce ED over-crowding and ambulance ramping one must reduce the processing time as illustrated above. The same applies to creating additional ward capacity by reducing the ward LOS.

Secondly, the example is provided to share the approximate magnitude of the performance increase at RPH for the discharge stream of patients (actual discharge stream LOS started around 3.5 hours (~65% NEAT), and ended at around 2.0 hours (~95% NEAT). This reduction in ED LOS was critical to the success of RPH and other hospitals we have worked with.

The final point to make in this background context section is that a 'whole-of-hospital' approach is required. Whilst the problem of ED over-crowding and ambulance ramping resides in the ED, the rest of the hospital are often contributors to the problem. It doesn't matter from an overcrowding or ramping perspective whether patients are delayed in the ED due to internal ED processes, or back-of-hospital reasons such as waiting for a specialty review or bed allocation. Anything that delays the patient journey in the ED increases the volume of patients in the ED (for a fixed demand profile). Additional information on the impact of reducing ED LOS on actual ED performance and work ratios is provided as an Addendum to this letter.

## Comments addressing terms of reference #2

*"Factors impacting on the capacity of each hospital to meet the current and projected demand in the provision of acute health services."* 

Our work separated the hospital into three main functions and we have designed studies to address each. The three areas and our unique diagnostic study are listed below. The performance of Tasmanian Health's four key hospitals against these studies were investigated in 2014 with the results contained in the publically available reports.

- **Emergency Departments.** Our productivity study is the 'Who owns the timeline study?'. This time and motion study tracks patients through the ED according to ~13 time points and provides unique information not available through business intelligence data.
- **Patient Flow (allocating beds to admission patients in the ED).** Our productivity study is the 'Was the bed empty?'. This analysis investigates the portion of ED admitted patients that progress to an empty ward bed, and the time taken to arrive to that empty bed.
- **Wards.** Our productivity study is the 'Why am I still here?'. This study investigates the utilisation of ward bed stock according to 40+ criteria arranged into 9+ categories. It

identifies challenges to discharging patients and reducing ward LOS to create ward capacity.

Our findings from these studies indicate that Tasmanian Health had, (at the time of our studies), significant latent capacity in its four key hospitals as evidenced by the follow key insights (more information available in the redacted reports). In our ED/WOTTL study we identified numerous instances where additional unnecessary time was taken to treat and process patients. This resulted in increased ED LOS and led to over-crowding and ambulance ramping. As an example it took LGH 6 hours and 4 minutes on average to allocate a bed after bed request. Equivalent times were 2:33<sup>2</sup> for RHH, 1:29 for NWRH, and 4:18 for MCH.

In our patient flow/WTBE study we noted a significant proportion of ED patients were admitted to beds that were empty at the time of bed request, and the time taken to admit patients to empty beds was significant. The results for each hospital were:

- RHH. 62% ED patients admitted to empty beds at time of bed request, average time from bed request to leaves ED was 5:06.
- LGH. 45% ED patients admitted to empty beds, average time from bed request to leaves ED was 5:18.
- NWRH. 68% ED patients admitted to empty beds, average time from bed request to leaves ED was 2:20.
- MCC. 85% ED patients admitted to empty beds, average time from bed request to leaves ED 1:20.

In our ward/WAISH study we noted a significant proportion of ward patients were occupying beds for non-clinical reasons. As an example the distribution of bed usage at RHH for the major categories of our audit was:

- Bed occupied
  - Occupied for clinical reasons<sup>3</sup>. 61% RHH, LGH 64%, NWRH 55%, and MCH 45%.
  - Occupied for non-clinical reasons<sup>4</sup>. 26% RHH, LGH 27%, NWRH 27%, and MCH 44%.
- Bed empty
  - Bed empty. 13%, LGH 9%, NWRH 18%, and MCH 11%.

The ranges for non-clinical and empty beds combined varied in Tasmanian Health from 36% to 55%. We note that a reasonable minimum for a high performing hospital is around 15% indicating significant opportunity for Tasmanian hospitals to improve productivity in this space.

Whilst we have not specifically investigated operating theatres, our anecdotal experience is that similar productivity challenges and opportunities exist. In terms of addressing the factors impacting on the capacity of each hospital to meet demand in provision of acute health services – our strong belief is that all four key Tasmanian Health hospitals had significant latent capacity in the ED and on the wards. The key is in unlocking the capacity through properly run, executive lead improvement programs as we've seen in other hospitals and health jurisdictions.

<sup>&</sup>lt;sup>2</sup> 2:33 is in format hh:mm denoting 2 hours 33 minutes.

<sup>&</sup>lt;sup>3</sup> Clinical reasons include patient undergoing procedure, test, or clinical review processes; or recuperating on rehab plan.

<sup>&</sup>lt;sup>4</sup> Non-clinical reasons include non-clinical delays associated with discharge requirements, discharge destination, discharge planning, discharge summary, transfer of care, or other reason.

## Comments addressing terms of reference #6

# "Improving the productivity of Tasmania's healthcare system."

Our experience has shown that rapid improvement in healthcare system productivity is possible, as evidenced by the improvements in individual hospitals and health jurisdictions previously described above.

The failure of healthcare executives to set direction and then hold implementation teams to account for project and improvement delivery is the main reason for failed reform programs. If having set a performance improvement expectation, those expectations are not being met; then the senior executive can intervene to try something else. With short implementation cycles (as recommended below), a two year reform program could have 6-8 cycles of implementation, learning, and then implementation again. A program should not fail if senior executives are performing these steps.

In our experience the key success factors to implementing a rapid reform program are:

**1. Ministerial and executive drive.** The Minister for Health and Secretary are key to creating a sense of urgency in the Health system and championing the reform. Their involvement in support of the program should vary between daily and monthly as needed for program success.

**2. Clear and incremental performance targets**. Clear performance targets for key metrics should be set as a final target and due date, as well as monthly incremental targets. The latter provide early insight of an under-achieving site and the opportunity for intervention. Performance targets should be cascaded throughout the hospital. For example, a 210min target for ED length of stay isn't enough, it should be broken down into a) 10 mins triage to enters ED, b) 20 mins enters ED to first seen doctor, c) 90 mins first seen doctor to bed request, d) 30 mins bed request to bed allocated and so on. The intent is to set process targets for the key processes across the hospital that when achieved, assure the overall performance required.

**3.** Robust diagnostic analysis. It is critical that the real root causes of delays or errors are understood. Inaccurate analysis based on perception or past experience can be useful, however in our experience it is not sufficient to accurately identify problem sources, nor provide insights into how to fix issues. Robust diagnostic analysis is also critical to engaging clinical staff to address the issues identified.

**4. Clinical engagement.** Clinical staff must be brought on the journey through their genuine engagement in the process. This includes sharing openly the diagnostic results, providing opportunities to shape the solutions and their implementation, and upskilling in reform processes where required. Our experience is that the reasons for delay at the operational level are almost always poor process related, and not poorly performing individuals.

**5. Hospital executive lead reform.** It is essential that hospital reform efforts be led by that hospitals senior leadership team (top 5-8 individuals). Reform is not an activity that can be outsourced to external consultants, middle management, senior clinicians, junior staff, or an affiliated university. It must be proactively lead by the hospital's senior leaders and executives.

**6.** Integrated program of short duration initiatives. Since the challenges in health care productivity are numerous, there can be no one 'big bang' solution. Our experience is that the total solution suite can number more than 25 individual initiatives. However, implementation

must come in rapid small batches. Ideally, implementation should be in three month blocks (quarters) involving 3-6 initiatives. One year of reform activities would involve four blocks of improvement initiatives totally 12-24 individual solutions. This enables rapid learning and doesn't ransom hospital performance to one or two long duration big bang solutions that may not deliver.

**7. Improved operational reporting.** Healthcare services delivery is complex, with many functional departments involved. Specific metrics that provide real insights when looking across functional silos need to be developed and distributed on daily or weekly timeframes. These are essential to enabling hospital executives to manage day-to-day operations whilst monitoring the performance of improvement initiatives. Our experience is that current operational reporting systems are not fit for purpose.

**8. Expert assistance/guidance**. Additional support to hospital executives has proven a key enabler of rapid improvement. Whereas an executive that hasn't experienced a high performing hospital can struggle to understand what is required; a proven external change agent who has supported numerous hospitals to achieve rapid improvement can provide immense guidance based on prior experience.

**9. Executive accountability.** Hospital executives must be held accountable for the delivery of their reform program (3-6 initiatives in 3 month blocks), and the resulting improvement in performance. Our experience is that without the risk of punitive action or job loss, executives can find many other things to focus on. However, when executives are held to account and starting delivering on the reform program, many of the prior concerns that occupied their attention start to fade away.

**10. Whole of hospital approach.** The genius of the WA and NSW programs is that they adopted a 'whole of hospital approach' – reflecting the complex/interconnect nature of hospitals. Even though the goal was improved ED performance, this was achieved with a focus on 'back of hospital' areas such as patient flow, imaging, visiting consultants, wards, and allied health. The benefit is two-fold; first the ED is engaged in reform knowing the whole hospital is involved and second, these other areas of the hospital need to improve for the ED to improve.

**11.** Focus on operations – Director of Operations. The complexity and interrelatedness of hospitals means that conventional management lacks the ability to looks at cross-functional performance as seen by the patient. A Chief Operating Officer or Director of Operations empowered to look at processes across functions and drive improvement is essential to success.

Our experience with the Tasmanian improvement program that we supported, was that only four to five of the above eleven key success factors were present. In contrast, RPH, NSW and a public tertiary hospital we worked with had ten or more factors present and achieved rapid improvements in NEAT performance.

We can see no reason why Tasmanian Health cannot experience a significant improvement in healthcare system productivity, quality and performance, following the implementation of a transformation program containing the above nine key success factors.

Lastly, adding additional resources (beds, staff) to the existing system may not deliver the planned performance improvement. Additional resources brings additional management complexity; at some point during the expansion different operational management processes are required. An organisation that is not optimising its current resource allocation is not likely to effectively utilise an increased volume of resources.

## Conclusion

We would again like to thank this Sub-Committee for the opportunity to provide a submission and apologise for its late delivery. I would invite you to review the attached Diagnostic report provided by our firm to HSI/UTAS (noting they are on the public record).

We trust that the preceding background discussion and the commentary provided in response to selected terms of reference questions has provided some new perspectives on the Tasmanian healthcare system, and especially on how it might be improved for the benefit of all Tasmanians.

Kind regards,

Submitted via email.	Submitted via email.
Kate Brockman	Mark Walmsley
Director and Co-Founder HRC	Commercial Manager and Co-Founder HRC

### Addendum:

1. Reducing workload and improving quality by reducing length of stay

#### **Enclosures:**

- 1. Final Report for Royal Hobart Hospital redacted 18/12/2014
- 2. Final Report for Launceston General Hospital redacted 18/12/2014
- 3. Final Report for North West Regional Hospital redacted 18/12/2014
- 4. Final Report for Mersey Community Hospital redacted 18/12/2014

# Addendum 1. Reducing workload and improving quality by reducing length of stay

The following table considers the impact on hospital EDs as a result of improving NEAT performance on a hypothetical hospital<sup>5</sup> with 240 presentations per day as above, 40 beds, 16 nursing, and 4 medical staff.

Using the data provided above, we consider the impact of our hospital improving its NEAT performance from 40%, through 60%, to 80% in the table below.

	Emergency Department NEAT performance		
Issue to consider	40%	60%	80%
Patients per day/hour (on average)	240/day, 10/hour	240/day, 10/hour	240/day, 10/hour
Number of beds in the ED	40	40	40
Medical staff	4	4	4
Nursing staff	16	16	16
Estimated ED LOS	4:52 (4.86 hours)	3:22 (3.37 hours)	1:58 (1.97 hours)
Patient work (patients per day x ED LOS)	1168 patient bed-hours	808 patient bed-hours	472 patient bed-hours
Number of patients in the ED	49 (40 in beds, 0 empty beds, 9 in corridor)	34 (34 in beds, 6 empty beds, 0 in corridor)	20 (20 in beds, 20 empty beds, 0 in corridor)
ED occupancy (based on 40 beds)	122%	85%	50%
Surge capacity (assuming no corridor pts)	- 9 patients	6 patients	20 patients
Doctor – patient ratio	1 : 12.2	1 : 8.5	1:5
Nurse – patient ratio	1 : 3.1	1 : 2.1	1 : 1.25
Number of patients at handover	49	34	20

Close inspection will reveal that reducing the ED LOS reduces the total work in the ED to be completed, which with fixed staffing improves the patient:clinician staff ratios. This improved ratio is one of the reasons the NEAT program is associated with improved clinical outcomes. The department will be less crowded (see row 'number of patients in the ED'). There are workload benefits for staff including reduced patient load and notably patients to handover at end of shift.

Not the change in workload, over-crowding, and clinical outcomes for the three NEAT performance scenarios considered all had daily presentations at 240 per day.

In our opinion, these improved outcomes are why the NEAT program needs to be a critical part of the Australian healthcare reform agenda.

<sup>&</sup>lt;sup>5</sup> Perhaps RPH circa 2008.