First Annual Report on the NSW Clinical Services Redesign Program (CSRP)

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Executive summary and key messages

NSW is implementing an ambitious agenda to transform the performance, quality and safety of the NSW health system. It has (at least) three main components:

- A significant increase in resources with the commissioning of an additional 1,811 beds between 2004 and 2006.
- Top down performance management, with a particular focus in the first phase on improved performance in emergency departments and in the management of elective surgery waiting lists.
- A formal Clinical Services Redesign Program that aims to achieve transformational, deep-seated structural and cultural reform of traditional work practices across NSW.

This is the first of three annual reports on one of those components – the Clinical Services Redesign Program (CSRP). However, as this report demonstrates, the three components of the reform strategy are intertwined and the CSRP cannot be considered in isolation. Accordingly, while this first annual report includes some early evaluation findings that are specifically about the CSRP, much of our findings are about the combined impact of the overall reform strategy.

It is important to recognise the caveats of this first report. The CSRP is still in its early phases and our independent evaluation has been underway for less than six months. Our results at this stage are thus more indicative than definitive and will need to build up over the life of the evaluation. Our second and third annual reports will be produced in October 2007 and October 2008 and will build upon the early results reported here.

That said, it is clear from our analysis even at this early stage that there have been significant performance improvements in the NSW public health system in the last two years. These changes are impressive, particularly the improvements in emergency admission performance (access block) and the virtual elimination of people waiting more than 12 months for elective surgery.

It is also clear that all three components of the strategy have made a contribution, albeit to varying degrees. Given that only a small number of CSRP projects have been implemented to date, and that the majority of these were in the most recent six months, we consider any contribution by CSRP to be modest at this stage. This is not a criticism, merely a reflection on the timing of this first report.

The CSRP is aiming to achieve transformational, sustainable, system-wide change. Obviously, this cannot be achieved overnight. The key question in year one is thus not what the CSRP has achieved so far but whether the necessary building blocks (including the intervention methodology itself) are in place to allow it to achieve system-wide improvements over the next two years.

This is particularly the case because the effects of the three components of the strategy are potentially additive. For example, the additional beds may have created sufficient slack in the system to facilitate the successful implementation of the CRSP. Likewise, the real impact of CSRP may not be in achieving improvements in the key performance areas against which it is being measured but in preventing the system from deteriorating back to where it previously was.

Key messages about key performance indicators

Table 1 below summarises the progress that has been made in achieving the Program’s Key Performance Indicators (KPIs). As this table demonstrates, there have been significant performance improvements in the NSW public health system in the last two years. These changes include significant improvements in emergency admissions performance (access block) and the virtual elimination of people waiting more than 12 months for elective surgery.
Table 1  Summary of progress in achieving the Program’s Key Performance Indicators

<table>
<thead>
<tr>
<th>KPI Area</th>
<th>Indicator</th>
<th>Target</th>
<th>Performance at end June 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Department</td>
<td>Emergency Admission Performance</td>
<td>All hospitals &gt;80% by June ’08 (AHS PA’s &gt;80% by June ’06)</td>
<td>77% state-wide (on trend line). Since 2003/04, about 15% improvement in the major referral hospitals and 10% in others. Major referral hospitals now about 10% worse than other hospitals. While metropolitan EAP is improving, EAP is declining in non-metropolitan hospitals (but still &gt;80% at June 2006). Children have the best access, older people the poorest. But EAP for older people has improved the most.</td>
</tr>
<tr>
<td>Off stretcher time</td>
<td>All hospitals &lt;30 mins for 95% of patients (AHS PA’s &lt;30 mins for 90% of patients)</td>
<td>Data quality problems with this indicator but data suggest a 12% improvement in last two years. By June, 80% state-wide (on trend line).</td>
<td></td>
</tr>
<tr>
<td>Attendances at ED with chronic disease</td>
<td>5% pa reduction (from predicted trend line) in number of ED attendances with chronic disease over 3 years</td>
<td>Not measured.</td>
<td></td>
</tr>
<tr>
<td>Elective Surgery Performance</td>
<td>Long waits over 12 months</td>
<td>None by June ’08 (AHS PA’s none by June ’06)</td>
<td>Virtually eliminated by the end of June 2006.</td>
</tr>
<tr>
<td>Urgent cases more than 30 days</td>
<td>None by June ’08 (AHS PA’s none by June ’06)</td>
<td>Decrease of 73% in last two months (May and June 2006). Around 500 cases state-wide by end of June, down from 3000 in January.</td>
<td></td>
</tr>
<tr>
<td>Length of Stay</td>
<td>Relative Stay Index</td>
<td>Business case was 5% reduction in ALOS compared to projected LOS by June ’08 (or ’09?). No change expected by June ’06.</td>
<td>Not measured.</td>
</tr>
</tbody>
</table>

The major reduction in the number of people waiting more than 12 months for elective surgery occurred in 2005, primarily due to an increase in surgical activity. An increase in the number of ‘not ready for care’ patients also played a small part.

Our conclusion is that the CSRP had little impact on reducing the number of ‘long wait’ surgery cases by 30 June 2006. We emphasise again: this in no way reflects on CSRP; it is simply a matter of timing. The major reductions in the ‘long wait’ list occurred prior to the commencement of the CSRP. What the CSRP surgery projects are now in a position to do is to assist area health...
services to better manage the waiting list and maintain the reduction in long waits. The same applies to emergency department performance.

Our final key message about key performance measures is that there is considerable variability in the month-to-month data e.g. emergency admission performance and triage times, particular at hospital level. One or two months of what might be seen as poor performance may in fact just be part of the natural variability around a long trend of improvement. Performance needs to be assessed over time.

**Key messages about the CSRP and its key success factors**

- The key elements of the CSRP philosophy and approach are a focus on process; the availability of timely, accurate, data; working in teams; using the concept of a patient journey; taking a patient perspective; utilising expertise of the external partners; and rigorous project management, at least in the initial phases.

- Involvement in the CSRP is seen by staff as a generally positive experience. Much is being learnt from the external partners. The challenge will be to maintain and utilise the knowledge and skills that have been learnt and allow the necessary capability transfer to take place.

- There are encouraging early signs of an increasing focus on the patient journey and on redesigning care processes around the needs and experiences of patients. There is also widespread acknowledgment that the enormous potential of this part of the program, and its effects on service quality, has yet to be fully realised.

- There is a perception by key stakeholders that the CSRP is having an impact on ‘breaking down silos’ at the level of individuals and groups which is also encouraging, if a little premature to say anything definitive about.

- While the vision for CSRP is one of achieving transformational change, most of the achievements that can be attributed to the CSRP at this stage are better described as incremental and modest rather than transformational. It may be that this was inevitable in the first phase and when some of the key planned elements such as wide-scale organisational and management development programs were still not in place. A shared vision about the fundamental nature of the change required (transformational or incremental) is yet to be achieved.

- A reflective/formative question we come to in our conclusions, and one now being asked in improvement efforts worldwide, is whether this particular, and fairly typical, programmatic approach of the CSRP might possibly be better suited to ‘small’ ‘fine tuning’ change. It may be that a ‘big’ transformative methodology still needs to be found and blended with what already exists. The key question for ongoing consideration is why it could be expected that the CSRP might be any different in this regard to the experiences and results being reported elsewhere. A corollary is how the possibility of similar results might be avoided.

- The outcome at this early stage is that, as the CSRP is developing, it is becoming indistinguishable from ‘business as usual’. As long as there is confidence in how ‘business as usual’ is being managed, that should not be a problem and, in fact, ‘business as usual’ can be a virtue because it is the strongest way of achieving sustainability (becoming part of established everyday behavioural and thinking routines). However, there are expectations that the CSRP will improve the health system that it is rapidly becoming part of.

- Links between CSRP and other parts of the health system are variable. The links with performance units are strong. The links with quality departments, learning and development units (for example) are less strong. This reflects the focus of the program at this point with most of the effort on improving performance rather than quality or safety. The challenge lies in being able to move forward simultaneously on all three fronts and, in this respect, future CSRP strategy may need to make the ‘3-legged’ focus clearer and more explicit.
There is a ‘disconnect’ between the initial stages of projects and implementation. The former is visible, time-limited, well resourced and subject to strict project management. The latter is largely invisible, open-ended, not so well resourced and is sometimes getting lost in the day-to-day business of health care. Improving the management of the implementation phase will be a major challenge in the next phase of the program; and one of the best ways of ensuring that any ‘gap’ between program aspiration and outcome does not begin to open up.

The challenges in achieving the aims that NSW has set for itself cannot be under-estimated but there are good signs and prospects at this early stage. It is clear that increasing the number of beds does nothing, in and of itself, to improve performance. It is also clear that performance management may improve performance but that it requires strong, ongoing maintenance. The CSRP has the potential to change the culture of the health system in ways that the other two strategies cannot. Our annual reports over the next two years will increasingly focus on assessing the degree to which this potential is being realised, with the goal of capturing the learning about how large scale systems improvement can best be achieved and sustained.
1 Introduction

The Clinical Services Redesign Program (CSRP) has its origins in the ‘Maggie Project’ that has been underway in the Hunter region since 2002. The Access Block Improvement Program (ABIP) followed the Maggie Project. The ABIP was undertaken in 10 hospitals in 2004-2005 with the goal of reducing access block out of emergency departments.

On the basis of the experience with Maggie and ABIP, NSW Health submitted a business case to the NSW Treasury in 2004-2005 and set out the case for the funding of what is now the CSRP. That business case is summarised in Section 4.1. Funding for the CSRP was provided for three years from July 2005. This included funding to cover the cost of engaging external consultants to work with CSRP projects, to backfill staff participating in redesign projects and to fund an independent evaluation.

The CSRP was funded to operate at three levels. A central CSRP unit would provide the overall direction, develop system capacity in areas such as organisational development and change management and would be responsible for knowledge management.

Clinical Redesign Units (CRUs) would be established in all area health services to lead redesign projects within each area. At the service level, the CSRP would fund a series of redesign projects around specific aspects of care. While most would be at the hospital level (for example, a CSRP in a specific emergency department), others would be at an area or sub-area level.

The first project began in August 2005. By June 2006, some 35 separate projects had been initiated, although many of them are still in their very early stages.

The CSRP is one of three key strategies adopted by NSW to transform the performance, quality and safety of the NSW health system. The other two main components are:

- A significant increase in resources with the commissioning of an additional 1,811 beds between 2004 and 2006.
- Top down performance management, with a particular focus in the first phase on improved performance in emergency departments and in the management of elective surgery waiting lists.

The three prongs of the reform strategy are intertwined and the CSRP cannot be considered in isolation.

At the same time, other changes were taking place in the NSW health system. The previous area health services were abolished, with the current areas being formally established from 1 January 2005. This was a major change and it has taken considerable time to put the new area structures into place. Some elements are still not in place. The outcome is that many organisational changes were continuing to take place in parallel with the roll out of CSRP, the opening of additional beds and a new approach to performance management.

These changes provide an important context for the first year of the CSRP.

1.1 Introduction to the evaluation

This is the first annual report of the external evaluation of the CSRP. This first report focuses on program delivery and program impact, specifically the impact on the key performance indicators (KPIs) for access to services. This includes analysis both by area health service and by groups of like hospitals, together with analysis by age group with a focus on the elderly. It includes a time series analysis of the KPIs and reports on the influence of seasonality.
The evaluation of program delivery at this point has included a review of existing project-level and program-level documentation in order to identify whether the CSRP is being delivered as originally intended, resulting in a descriptive piece of work which will form the basis for analysis in year 2 and year 3 of our evaluation. This work is informed by documents such as the CSRP Business Case and the CSRP Program Review completed in February 2006.

As flagged in our CSRP evaluation plan¹ the second and third evaluation reports will increasingly focus on a range of questions that are not addressed in this first report:

- Has efficiency improved? This will include an analysis of average length of stay and emergency department (ED) attendances for patients with chronic disease.
- Has improving patient journeys resulted in improved patient safety? This will include an analysis of incidents that are likely to be impacted by improved patient journeys.
- Have unplanned readmissions decreased?
- Is it possible to link outcomes at the project level and program level with system-wide performance?
- Have any improvement networks or communities of practice developed?

Rather than reporting the results from each of the data collection and analysis activities undertaken for this first report separately, we have combined the results in the appropriate section. For example, the section on implementation combines data from interviews, the Year 1 Survey and other documents such as the first internal evaluation completed in February 2006.

¹ Centre for Health Service Development, University of Wollongong, and University College London Evaluation Plan for the NSW Clinical Services Redesign Program (CSRP). August 2006.
2 Evaluation strategy

The evaluation has two components:

- **Summative evaluation** (evaluation for judgement) which seeks to ascertain whether and to what extent the CSRP was implemented as intended and the desired/anticipated results achieved.
- **Formative evaluation** (evaluation for learning) whereby the results of the evaluation provide a tool for learning and reflection which in turn inform the ongoing development and improvement of the CSRP itself.

As shown in Figure 1, the evaluation strategy is focused on two core issues. The first is to compare what was achieved by CSRP against the KPIs set out in the business case for the Program. The second is to seek to explore any variation in these indicators by means of the key success factors (KSFs) identified in the literature on implementing, spreading and sustaining organisational change.

The evaluation strategy has been designed to allow the evaluation team to form a judgment as to how successful the CSRP has been in meeting the three core challenges facing any large-scale improvement program; implementing, spreading and sustaining improvements in the NSW health system (‘making it happen, making it spread, making it last’) with regard to all three dimensions of performance, safety and quality.

**Figure 1 Evaluation strategy**

![Evaluation Strategy Diagram]

The evaluation of implementation is a strong focus in the first two years of the evaluation but will diminish in importance in the third year as the Program achieves a degree of maturity. Such a shift will reflect a move from description/analysis (what happened) to interpretation and a more explanatory orientation (why it happened) for the evaluation as a whole. Explanatory research of this nature seeks to address and generate solutions to any issues and problems that arise during the lifetime of the Program and provide the basis for future learning and design of the Program. In this sense it may in the longer term have more practical benefit than descriptive research and evaluation.

Evaluation of spread will build in importance over the three years and evaluation of sustainability will be a strong focus in years 2 and 3. Evaluation of performance (via the KPIs) will remain a high
priority for the evaluation over the course of the CSRP. Issues of safety (how safe a service is and how safe it feels) will be addressed in years 2 and 3 but will be limited by the ability to draw links between CSRP and safety. Evaluation of quality, primarily by evaluation of the impact on the patient experience, will build in importance as understanding develops about links between the CSRP and service quality.

The evaluation is framed in terms of three organisational levels (state, area health service, hospital/project team) and the interactions and links between those levels. The primary focus of the qualitative component of the evaluation in this early stage is at the area health service level. This will change over the course of the evaluation.

Analysis of KPI performance data examines differences between three cohorts of hospitals that began to implement clinical services redesign programs at different times, on the basis that this may give an indication of program sustainability:

- **Cohort 1** John Hunter Hospital (which commenced its Maggie Project in 2002).
- **Cohort 2** The ten hospitals in the ABIP that began in 2004.
- **Cohort 3** All other hospitals (some of which began implementing CSRP projects in 2005).

A wide range of internal evaluation activities is already underway as part of the CSRP. There is the potential for overlap and duplication between these activities and the external evaluation and we have sought, where possible, to avoid this. Our role is not to evaluate the performance of the whole public health system in NSW, but rather to evaluate the impact of the CSRP. As we have come to understand more about the CSRP, the more it is apparent that there are no clear boundaries between what constitutes CSRP and what constitutes other activities taking place in the NSW health system. We are aware, however, that separate evaluation streams may serve to reinforce the barriers between different parts of the overall NSW reform program, which is why we would support the establishment of regular ‘joint interpretive forums’ for making sense collaboratively of the evaluation data across the whole program.²

In the meantime our approach to the issue of attribution is to draw on the classic work on causation and association in the epidemiology of disease by Bradford Hill³ and ask six key questions when making an assessment of the changes that can be attributed to the CSRP:

- To what extent are improvements in performance associated with the presence of CSRP projects?
- Are performance, safety and quality improvements consistently achieved across different environments (different organisations, different clinical areas) within CSRP projects?
- Is there a relationship in time between performance, safety and quality improvements and implementation of CSRP projects?
- Are there plausible links between what was done as part of project implementation and what was achieved?
- Is there a coherent picture emerging across the different projects concerning the links between the presence of projects and performance, safety and quality improvements?
- Are projects with broader ‘reach’ associated with better improvements in performance, safety and quality than projects with a narrower focus?

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A final issue in relation to the framework for this evaluation is that the focus is on the CSRP (the Program) rather than on the evaluation of each CSRP project. Each CSRP project is expected by NSW Health to undertake a local evaluation. We have used data from individual hospitals to inform the evaluation of the Program as a whole, but the scope of the external evaluation does not include an evaluation of each CSRP project.
3 Method

3.1 Interviews

We have interviewed staff at central, area health service and project level to inform the work on understanding program implementation. Area staff worked in CRUs and project level staff had typically been seconded to work as project leads on CSRP projects. Consultants from each of the external partners were also interviewed (Table 2).

Table 2 External evaluation Year 1 interviews

<table>
<thead>
<tr>
<th>Level</th>
<th>Number of interviews</th>
<th>Number interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Area</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Health Department</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>External partners</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
<td><strong>58</strong></td>
</tr>
</tbody>
</table>

Interviews were recorded digitally. Subsequently, the interviewer listened to the recordings and extracted salient points and quotations. Recordings will be retained to allow for further analysis at a later date if there is a need to do so. Content analysis was undertaken using Leximancer document mapping software. Quotations in this report are attributed to interviewees by P (project level), A (area health service), EP (external partner) and D (Department of Health).

3.2 Year 1 survey and sustainability tool

We developed a survey tool (the Year 1 Survey) for distribution to projects implemented in 2005/2006 in order to gather information about, for example, what had been achieved, what had been learnt, what helped and what had hindered project implementation. This was primarily undertaken because, to date, there has not been any kind of system-wide approach to internal project-level evaluation.

The nature of some of the survey questions meant that there was little point in asking projects in their very early stages to participate in the survey. A list of projects that formed the focus of the Year 1 evaluation is included in Appendix 2, which also details those projects that were sent a copy of the survey. Consultation with area CRUs identified which projects to distribute the survey to. As indicated elsewhere in this report, it was not always easy to identify what was a discrete project and what was part of a larger project. We are aware of other projects that commenced in the first year of CSRP but these are in the early stages of development or implementation and hence were not a focus for this first report.

Because of their heavy involvement in their own internal evaluation, the five CSRP projects in the Hunter New England Area Health Service (AHS) were excluded from the survey. The survey was sent to 23 projects in September 2006. Seven area health services chose to distribute the survey through their CRUs, based on an assumption that various people would be required to answer the questions. For one area health service the survey was sent directly to project leads. Some responses were completed by project leads, some by CRU staff and some involved up to four staff, including project sponsors and key managers. Two responses combined two projects into one. One project completed one survey for each of the three hospitals involved in it.

Completed surveys were received from 18 projects, a response rate of 78% (18/23). Given all the other demands to provide information, we consider this to be an extremely good response. Each project was also sent a copy of the NHS Sustainability Model to complete (Appendix 3), given the importance of the issue of sustainability and the ‘fit’ between that tool and the evaluation strategy.
The projects in the Hunter New England AHS agreed to complete the tool. Unfortunately, only 15 responses to this were received, a response rate of 54% (15/28).

3.3 Quantitative data analysis

In order to evaluate the impact of the CSRP, the necessary first step is to establish what the pre-existing trend has been over a period of time. The method used in this first report is to undertake a time series analysis of the KPIs associated with emergency admission performance (EAP), triage times, waiting lists for elective surgery and off-stretcher times. This time series analysis starts in 1999 and has been seasonally adjusted using the methods described in more detail in Appendix 4.

The focus in this first year of the evaluation has been on producing an analysis that identifies the underlying trends in performance, and potential contributing factors in order to establish baseline data for the next two years. While KPIs have been compared to the targets, it is expected that the impact of the CSRP will be more easily identified in the next two annual evaluations.

No impacts on length of stay as measured by the Relative Stay Index (RSI) were expected in the first year of the program. Hence performance as measured by the RSI will be examined in future years.

The remaining KPI and its associated target (a 5% pa reduction from the predicted trend line in the number of ED attendances by patients with chronic disease) is attempting to measure the effectiveness with which chronic conditions are managed in the primary sector, reducing the number of acute episodes that have to be managed in hospital. However, it is not well defined at this point and is therefore also excluded from this first annual report. Work will be required in the next year to both define the target more exactly and to agree on how to extract the required data from EDIS. Several questions will need to be resolved. What is chronic disease in this context? How is a patient classified as having a chronic disease and how is this captured in EDIS? Is the goal to reduce the number of patients or the number of attendances by each patient or both?

3.4 Ethics approval

We applied to, and receive approval from, the University of Wollongong / Illawarra Area Health Service Human Research Ethics Committee and the NSW Department of Health Ethics Committee. All primary data collection by the evaluation team in the form of notes and records of interviews will be retained by the evaluation team in de-identified form in accordance with standard ethics committee requirements.
4 Key documents for the external evaluation

4.1 CSRP business case

The CSRP business case proposed a substantial investment in the redesign of clinical service delivery by undertaking ‘deep seated structural and cultural reform of traditional work practices in order to ensure patient care is managed efficiently to reduce delays and minimise risks, and to enable clinicians to be at the forefront of the reform process’ with a focus on specific patient journeys:

- the journey from home to home for the elderly patient requiring acute inpatient care as an emergency
- the elderly patient with multiple problems who can be managed in their own home and community.
- the elective surgery procedure.

The aim was that the CSRP would achieve large-scale, transformational, second order change, rather than merely refining or fine-tuning existing processes and procedures within the current system, largely leaving that system unchanged (first order change).\textsuperscript{4}

This work would be underpinned by the development of new clinical information systems. The business case recognised that improvements from the program would only be sustainable ‘if it results in a major strengthening of management skills across NSW Health’ with the embedding of culture change and management development in CSRP ‘from the first day in order to achieve sustainable solutions.’ Substantial changes in performance would require four essential conditions to be met:

- Adequate management capacity.
- Executive drive.
- Clinician engagement.
- A focus on key performance indicators.

Previous work had indicated that measurable performance improvements were typically seen 10-12 months after reform initiatives commenced; hence the aim was to achieve outcomes in years 2-4 of the project. The cost model for CSRP, based on a projected reduction in length of hospital stays, spans four financial years. The immediate outcomes for the program, as articulated in the business case, are a set of KPIs that are summarised in Table 3 (page 11).

A saving from a 5% reduction in length of stay was modelled as a theoretical financial benefit. In practice, the reduction would be used to create capacity to treat additional patients, reduce occupancy rates and partly meet the rising demand for health services.

The long term benefits of the program were seen as the most significant. These were identified as knowledge transfer to health service personnel by using the knowledge, skills and experience of external partners to form the basis for ‘a more strategic future’ for NSW Health and the systematic redesign of patient care processes necessary to:

- maximise bed utilisation

- identify alternate models of care
- achieve minimum delays for patients
- reduce adverse events
- reduce staff frustration with their working environment.

The business case identified that previous projects to improve the health system had been attempted, but these focussed on isolated problems, resulting in restricted success due to:

- failure to embed the process redesign into the day-to-day functioning of the workforce
- failure to address various immediate problems at the systemic level
- lack of recognition of the flow-on effects of change
- failure to adequately engage clinicians in change management
- failure to adequately fund projects
- providing a focus on only one component of the whole system.

The key risks to the CSRP (all of them included in our KSFs for this evaluation) were identified as:

- not achieving sustainable change
- improvements being eroded by increased demand for patient services
- insufficient Area or hospital management support for the process
- lack of alignment with other key reform initiatives - clinical information systems, corporate shared services, area health service restructure and additional beds
- lack of clinician ‘buy in’.

4.2 CSRP internal evaluation

An internal evaluation of the CSRP (titled the CSRP Program Review) was completed in February 2006. We have deliberately sought not to duplicate work that has already been done and hence some findings from that review are pertinent to the external evaluation.

The internal evaluation included semi-structured interviews with key stakeholders (in senior management positions at head office, area health service and hospital level) which resulted in some important key findings:

- Most stakeholders believed that additional resources had indeed made an important contribution to performance improvement.
- The provision of additional resources assisted the engagement of clinicians in clinical redesign activities, based on the premise that clinicians have long argued for increased capacity in the health system. This was also seen as a major risk to the CSRP, with clinicians disengaging if additional resources did not continue to be forthcoming.
- Almost all stakeholders acknowledged that an increased focus on performance management at hospital, area health service and Health Department level was important in driving system performance.
- The majority of those interviewed thought that ‘the CSRP was unlikely to have had a significant direct impact on performance as most projects were only just entering the implementation phase’.
Some of those interviewed acknowledged that the solutions developed as part of the previous ABIP were now being implemented more widely.

Many stakeholders indicated that the processes used in clinical redesign were not new and were closely aligned to existing quality improvement techniques. The involvement of external partners was therefore critical due to a combination of factors – an external view of the health system, project management experience, experience in business process re-engineering and the use of a range of specific tools and approaches.

In instances where clinician engagement was problematic, this was due to factors such as ‘a history of disengagement, a negative culture towards any change and a lack of clinical leadership’.

The level of involvement of area health service executive staff was variable.

The conclusion was that there were three important elements to improved performance:

- Additional resources (which provided some ‘breathing space’).
- A more systematic approach to performance management.
- Redesign activities.

Other comments and findings from the internal evaluation are included in relevant sections elsewhere in this report.
5 Key performance indicators

5.1 Introduction

The CSRP has established targets as a way of measuring change in performance. The data analysis plan will consider both the performance targets set out in the CSRP business case as well as other related performance measures, which aim to give a more broad coverage of the key performance areas. This will allow investigation into other measures that contribute to, but are not the focus of the performance targets.

The KPIs associated with EAP, triage times, wait lists and off-stretcher times have been analysed. However, at this early stage in the program, only a small number of projects have been implemented and virtually all of these projects have been implemented in the most recent six months of the series (to July 2006). This analysis is not intended to measure the impact of specific projects at hospital level, but is an overall look at the performance at the state, area health service and peer group level in terms of key performance indicators.

For the first year of the evaluation the focus is on producing an analysis which identifies the underlying trends in performance, and potential contributing factors, to establish baseline data for future years' evaluations. While KPIs have been compared to the targets, it is expected that the impact of the CSRP will be more easily identified in the further two annual evaluations. No impacts in length of stay as measure by the RSI were expected in the first year of the program. Hence analysis of RSI will be looked at in future years.

In the table below is a list of access and efficiency topics and associated key measures. Some potential contributing factors have been listed in the table. These are patient level measures providing a measure of system level impacts. System level factors mentioned in the internal CSRP evaluation that may be associated with performance were:

- Additional resources though the Sustainable Access Program and its Predictable Surgery Program.
- Changes to governance arrangements between NSW Health and AHSs (direct accountability for performance and increased emphasis on performance management).
- Clinical and service redesign activities.

**Table 3 Key performance indicators and targets**

<table>
<thead>
<tr>
<th>KPI Area</th>
<th>Indicator</th>
<th>Data Source</th>
<th>Target</th>
<th>Contributing factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency</td>
<td>Access Block</td>
<td>ED</td>
<td>All hospitals &lt;20% by June '08 (AHS PA’s &lt;20% by June '06)</td>
<td>- ED attendances</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- ED admissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- % of admissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Access Block</strong></td>
</tr>
<tr>
<td>Off stretcher</td>
<td>Ambulance</td>
<td></td>
<td>All hospitals &lt;30 mins for 95% of patients (AHS PA's &lt;30 mins for 90% of patients)</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
<td><strong>Access Block</strong></td>
</tr>
<tr>
<td>Triage Time</td>
<td>ED</td>
<td></td>
<td>T1: 100% &lt; 2 mins</td>
<td>- ED attendances</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T2: 80% &lt; 10 mins</td>
<td>- ED admissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T3: 75% &lt; 30 min</td>
<td>- % of admissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T4: 70% &lt; 1 hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T5: 70% &lt; 2 hours</td>
<td></td>
</tr>
<tr>
<td>KPI Area</td>
<td>Indicator</td>
<td>Data Source</td>
<td>Target</td>
<td>Contributing factors</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Attendances at ED with chronic disease</td>
<td>ED 5% pa reduction (from predicted trend line) in number of ED attendances with chronic disease over 3 years</td>
<td>ED</td>
<td>None by June '08 (AHS PA’s none by June '06)</td>
<td>None by June '08 (AHS PA’s none by June '06)</td>
</tr>
<tr>
<td>Elective Surgery Performance</td>
<td>Long waits over 12 months</td>
<td>Wait List</td>
<td>None by June '08 (AHS PA’s none by June '06)</td>
<td>None by June '08 (AHS PA’s none by June '06)</td>
</tr>
<tr>
<td>Length of Stay</td>
<td>Relative Stay Index</td>
<td>Inpatient data</td>
<td>Business case was 5% reduction in ALOS compared to projected LOS by June 2009. No change expected by June '06.</td>
<td></td>
</tr>
<tr>
<td>Other Analysis</td>
<td>- Addition of beds</td>
<td>Project documentation and financial systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Focus on CSRP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Performance Management Initiatives</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Evaluation Plan for the NSW Clinical Services Redesign Program (CHSD, UCL) sets out the questions that the evaluation is addressing. This data analysis relates to questions that are addressed through an analysis of unit record data (ED, Waiting List and Ambulance). The evaluation questions that are relevant to the KPI analysis component of the evaluation are:

- Has access to emergency departments improved?
- Has access to surgery improved?
- What external factors impacted on performance?
- Are the CSRP results robust and sustainable?

5.2 Methods

5.2.1 Estimating trends and seasonal factors

In order to evaluate the impact of the CSRP on ED and EAP KPIs, it is necessary to establish what the pre-existing trend is over a period of time. A series may contain factors such as an underlying trend, seasonal variation, and short term irregular or random variation. Seasonal adjustment is used to estimate seasonal variation and remove it from a series to more clearly show the underlying trend and other types of variation. This method is useful when there are consistent seasonal patterns occurring in the data series. The main focus in the first year of the evaluation process is to smooth the time series and remove seasonality to allow trends and turning points to be more clearly identified. In future years the possibility of regressive models using complementary data may be investigated.

Different methods are available for removing variation from a series and the following methods have been considered. The simplest method of removing variation from a time series is by a simple linear filter. This method takes a specified period (for example 12 months) and uses a weighted average of the data values over this period. The main advantage of this method is its simplicity; the moving average smooths the irregular part of the series, and makes an implicit adjustment for seasonality (when a 12 month period is used). The disadvantage of this method is that the moving average series starts later than, and ends before the original series (by 6 months for a 12 point moving average), thus it is difficult to see any impact occurring in the last 6 months of a series. It also does not perform well in highlighting turning points in the series.
A widely used tool for seasonal adjustment is the X-11 method. This method is designed specifically for dealing with monthly or quarterly data and estimates a seasonal pattern using an iterative procedure of moving averages, then removes the seasonality from the series, leaving a trend and residual component. The advantage of this method is that it uses weighted terms to estimate to the end point of a series giving a trend to the most recent time point, and it specifically estimates the seasonal factors and removes these from the series.

For details on the X11 method, including the model used for decomposition and the X11 algorithm see Appendix 4.

Figure 2 below is an example of the X11-method used for EAP at the NSW level. It demonstrates the raw, or original series, with the end of each financial year highlighted on the graph. The seasonality present is clear, with troughs or low points occurring around mid-year each year, and two peaks occurring during the annual cycle.

**Figure 2  Seasonality in raw series: emergency admission performance - NSW**

The X-11 procedure produces a seasonally adjusted, non-smooth version of this series, which has removed the regular, seasonal influences. This is identified in light blue in Figure 3. The trend fitted by the X-11 method is identified in dark red, and can be seen to closely fit the seasonally adjusted series, with turning points in the seasonally adjusted data closely followed by the trend line (see January 2002 and August 2004 for examples). A 2x12 moving average has also been fitted to demonstrate the similarity (in general shape) and differences between this and the X-11 trend line. The moving average series is not as sensitive to the data and gives no information for the first and last six months of the series. However, the general shape of the time series presented by both the X-11 trend and the moving average are quite similar.
The final trend is displayed in Figure 4 below with original data overlayed. The combination of these two series gives a good indication of the shape and turning points of the series, and the volatility associated with this series.

**Figure 4  Final trend: emergency admission performance - NSW**

The estimation of seasonality at state level is quite robust, as can be seen by the magnitude of the fluctuations in the seasonally adjusted series. At lower levels, the seasonal factors performed reasonably for most series, and in all cases provided a trend that was a reasonable fit to the original data. The main caveats are around the quality of the seasonality of lower level series (not shown in diagrams but used in the estimation process) and interpretation of the last few time points of the trend. A cautious interpretation is required as the last few points can be strongly influenced by the next unknown points in the series.
5.2.2 Key performance indicators

ED Performance has three associated KPIs, EAP (previously measured by access block), triage time and off-stretcher time. Access to surgery also has two associated KPI’s, long waits over 12 months, and urgent cases waiting more than 30 days.

Emergency admission performance

EAP is defined as the percentage of admitted patients transferred from the ED to a hospital ward within 8 hours of commencement of active treatment. The target is for EAP to be more than 80% by June 2008. This has been interpreted as a monthly target referring to the whole of NSW. Each Area’s Chief Executive Performance Agreement also contains this same target for 2005/06. The internal program review only considered metropolitan area health services in relation to EAP (CHW, HNEASH, NSCCAHS, SSEIAHS, SSWAHS, WSAHS). However the non-metropolitan areas have also been considered in this report.

We are interested in determining whether EAP has improved in the period leading up to 30 June 2006, particularly as a result of clinical services re-design. EAP results have also been affected further back in time than other performance indicators due to early clinical redesign projects, namely the Maggie Project commencing in 2002, and the ABIP that commenced in 2004.

Triage time

Triage time is the elapsed time from allocation of a triage category to the commencement of active treatment. Benchmark times for each triage category are based on recommendations from the Australasian College of Emergency Medicine. There is also a recommended threshold of patients who should be treated within benchmark times. These are the same as the targets set out in the CSRP business case and are shown in Table 4.

Table 4 Triage category waiting times and performance thresholds

<table>
<thead>
<tr>
<th>Triage category</th>
<th>Brief description</th>
<th>Maximum recommended waiting time</th>
<th>Performance threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Immediately life-threatening patients</td>
<td>2 minutes</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Imminently life-threatening patients</td>
<td>10 minutes</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>Potentially life-threatening patients</td>
<td>30 minutes</td>
<td>75%</td>
</tr>
<tr>
<td>4</td>
<td>Potentially serious patients</td>
<td>1 hour</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>Less urgent patients</td>
<td>2 hours</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: NSW Health Website

The performance against targets is generally reported at monthly intervals.

Off stretcher time

Off Stretcher Time (OST) is the time between ambulance arrival and transfer of care. The key indicator for OST is the percentage of patients that wait more than 30 minutes following arrival at the ED. The CSRP target is 5% by June 2008. Current performance agreements for areas have targets of 10%.

Overdue urgent surgical cases

Urgent long waits for surgery are defined as Category 1 patients waiting over 30 days. As for the long wait (over 12 months) indicator, patients ‘not ready for care’ and patients waiting for obstetrics and renal procedures are excluded from the count. Waiting time is calculated as the number of days since the patient was classified as Category 1.
**Long waits (over 12 months) for surgery**

Long waits for surgery have been defined as follows:

- Patients 'not ready for care' are excluded from the count.
- Patients waiting for obstetrics and renal procedures are excluded.
- Waiting time excludes time not ready for care.

We have been advised by officers from NSW Health that this definition corresponds with current NSW Department of Health practice. However, the current *Waiting Time and Elective Patient Management Policy* (2006: 11) lists a number of further exclusions from the main count, which are not identifiable in the data we have obtained to date. Future work will investigate these additional exclusions.

### 5.2.3 Other factors impacting on performance

The CSRP has established performance targets as a way of measuring change in performance. The data analysis will consider both the performance targets set out in the CSRP business case as well as other related performance measures, investigating measures which have an effect on, but are not the focus of the performance targets. Some of the variables mentioned below are external factors (such as number of beds) and others are factors not directly being measured, but which impact on the KPIs.

- Changes in number of ED attendances.
- Changes in number of admissions and discharges within ED’s.
- Additions to the elective procedure wait list.
- Number of surgical patients not ready for care.
- Data on bed increases and enhancements to surgery.
- Non-admitted patient occasions of service.
- Staff increases

Where data are available, these factors can be used to help describe changes to the performance indicators.

### 5.3 Results

The following KPIs have been analysed over the period 1 July 1999 to 30 June 2006. This length of time series is a minimal length for estimation of seasonal factors, and also allows a trend to be established over a long period. Most graphs have been presented with the full time series; however the initial state level indicator has also been presented for the previous 4 years to allow the more recent data to be displayed more clearly. Where possible the scales are consistent across the indicator to allow comparison of levels across graphs.

In addition to state level analysis, the indicators have been presented using the levels of aggregation shown in Table 5.

#### Table 5  Levels of aggregation

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Number of levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan / Non-Metropolitan Area Health Services</td>
<td>2</td>
</tr>
<tr>
<td>Teaching / Non-teaching hospitals</td>
<td>2</td>
</tr>
</tbody>
</table>
5.3.1 Emergency admission performance

EAP at the state level has been continually improving commencing from mid-late 2004. At that time, the NSW ABIP was implemented and 563 new beds were added to the system. The EAP has since increased by around 10% from around 67% at that point, to around 77% at the end of the series. During this period, several initiatives have been implemented, as depicted in Figure 5. The impact of any one of these factors individually on the performance is unclear. A combination of seasonal and irregular variation means fluctuations in monthly performance of the order of 5%-10% over the year are not uncommon and should be interpreted as such.

Prior to 2003/2004, EAP had been consistently decreasing, which can be seen more clearly in Figure 6 below, which extends the series back to July 1999.

Figure 5 Emergency admission performance: NSW Jan 2002 to June 2006

The target for EAP is 80%, which was the level the series was at in July 1999. This is a target for June 2008, and the trend is heading towards this point, however the sustainability of this target will be more clearly seen in further reports.
Figure 6  Emergency admission performance: NSW July 1999 to June 2006

Over the 7 year period the percentage of people who did not wait has fluctuated around the 7% mark with a slight trend towards 8% in the latter half of 2005, which has returned to the 7% mark at the end of 2006.

Figure 7  Emergency department attendances and ‘did not waits’ - NSW

At the state level over the 7 year period the percentage of people admitted to wards has varied between around 21% and 24%, with a very strong seasonal pattern. There is no clear trend apparent in the series.
EAP varies greatly in level between teaching and non-teaching hospitals. However, the trend in EAP over the last 7 years has been quite similar in both sets of hospitals. Teaching hospitals have had approximately 15 percentage points worse performance in emergency admission than the non-teaching hospitals over this time. Since the turning point of the series at the end of 2003/04, teaching hospitals have been improving in performance at a faster rate (around 15 percentage points) than non-teaching hospitals (around 10 percentage points) and have narrowed the gap in performance to around 10 percentage points. However both sets of hospitals are showing continual improvement towards the levels seen in mid-2001.

EAP has focused on metropolitan AHSs in regards to performance targets. The strong trend that is present in the metropolitan areas is a driving factor behind the improvement in state level performance. Although the impact of CSRP projects cannot be specifically identified, the trend in
this series has continued over this period. The non-metropolitan trend has been decreasing over the entire length of the series, from a starting point of 95% to around 83% in June 2006, which remains above the targeted performance and better than the metropolitan performance.

**Figure 10 Emergency admission performance by metro and non-metro area health services**

At the AHS level, there are large variations in this performance indicator. Figure 11 below shows only the trend series. Each individual area’s raw data and trend is included in Appendix 4. The major feature of this graph is the improvement in EAP at Sydney West AHS since June 2005. Performance was the worst of any area at the end of 2004/05 and has since turned around and improved by 25 percent.

The Children’s Hospital demonstrates a large level of variation as its series contains only one hospital. Generally all areas are converging toward a performance level between 70 and 85%. North Sydney/Central Coast, South East/Illawarra, Sydney South West and Sydney West areas have all experienced a reversal of the trend and are still improving to June 2006. Hunter/New England Area Health Service has been improving since around June 2003. This is possibly a delayed but on-going result of the Maggie project, which commenced in mid 2002, as no other AHSs had a major change in trend direction till later in the series. The EAP of North Coast AHS and Greater Western AHS have had decreasing levels of performance over the last 7 years, and the performance indicator has flattened out for North Coast over the last 18 months but has not improved.
One factor that contributes to EAP is the trend in attendances. Since early 2004, Hunter/New England AHS has had a large increase in attendances of the order of 5000 attendances per month. Nevertheless, their performance has remained steady or even slightly improved. North Coast AHS has also seen an increase of a similar magnitude during 2004/05 that has since flattened.

Most of the other areas have experienced gradual increases in attendances over the period.

Figure 13 depicts the admission rate for people attending emergency departments. This should be interpreted with reference to the previous graph showing attendance levels. South Eastern Sydney/Illawarra has had a long trend of increased admission rates, dating back to mid 2002. The admission rate has moved from 19% to around 25%. Over this same period attendances have stayed fairly flat, with only a slight rise, and EAP has continued to improve. North Sydney/Central
Coast has also had a slight increase in the admission rate also occurring while a slight trend towards an increase in attendances was occurring. Again, EAP has continued to improve since July 2005.

**Figure 13 Percentage of emergency department attendances admitted by area health service (trend)**

![Figure 13](image)

Figure 13 shows the percentage of emergency department attendances admitted by area health service. The admission rate has increased slightly, and the trend towards an increase in attendances has continued. EAP has improved since July 2005.

Figure 14 below shows the EAP for the seven largest hospitals that have had ED or patient flow projects since the commencement of CSRP. The first of these projects (Wollongong and Royal North Shore) began implementation in October 2005 and the last (Liverpool) in March 2006. Over the length of the series there have been marked differences between the performance levels of the hospitals. However, from early 2006 there has been a convergence of the EAP level for these hospitals, with all hospitals except St George showing an improvement. St George began implementation in December 2005.

**Figure 14 Emergency admission performance by hospital (trend)**

![Figure 14](image)
Hospitals have been grouped into peer based categories as follows: Category A (Principal Referral), Category B (Major Metropolitan), Category C (Major Non-Metropolitan) and Category D (District Hospitals). The series for district hospitals is not long enough for a trend to be fitted however the performance of this group has been stable over the 2 years in the high nineties. Peer Group A and Peer Group B both exhibited changes in trend around the end of 2003/04. This was around the time of the commencement of the ABIP, which was implemented in 10 hospitals across the state. Peer groups A, B and C are all improving in EAP, with principal referral hospitals showing the largest improvement in magnitude.

Figure 15 Emergency admission performance by peer group hospitals

Each of the hospitals in NSW was grouped into one of three cohorts. The first is John Hunter Hospital, where projects focusing on improvement of EAP commenced in March 2002. The second cohort represents the 10 hospitals that participated in the ABIP, which commenced in June 2004. The remaining hospitals were grouped and labelled “Non-ABIP”. Cohort 1 (John Hunter Hospital) exhibits a higher level of variation than the other cohorts due to there being only one hospital in this cohort.

The Maggie Project commenced in March 2002. At this point EAP was worsening and it continued to do so for the next 12 months. The trend turned around in May 2003, from which point onwards there has been continual improvement despite a slight blip in early 2004. EAP is now above the 80% target for this hospital.

When comparing the cohort containing hospitals that participated in the ABIP to those who did not, there is a fairly parallel trend in these series. Both series have seen improvement since mid-2004 when the ABIP commenced.
Each cohort has been presented below in Figure 17 as a series representing the absolute change in EAP since July 1999. Since this time, the improvement for Cohort 1 has been the most marked, with an EAP level 15% improved over this time. The remaining cohorts have travelled fairly similarly with ABIP hospitals performing slightly better than the non-ABIP hospitals over the last year of the series (2005/06). The ABIP hospitals are now returning to the performance level seen in July 1999 and the non-ABIP hospitals are displaying a trend towards that point also.

Each AHS is working with an external partner in the design of projects falling under the CSRP banner. The four external partners are:

- KPMG - Greater West, Greater Southern and Sydney West.
PA Consulting - North Sydney/Central Coast and South Eastern Sydney/Illawarra and
PWC - Children’s Hospital Westmead (plus Ambulance Service and state-wide projects).

Figure 18 shows EAP grouped by the external partner working with each hospital. It will be seen that there were significant differences in the performance of the hospitals in each cohort prior to these partnerships commencing in late 2005.

Since the CSRP commenced there has been a significant shift in the EAP of the AHSs associated with KPMG. The EAP of these AHSs has improved by around 15% from 68% to 83%. The AHSs working with PA Consulting have continued on the existing trend towards 75%, but are still working towards the target level of 80%. The Accenture AHSs have also continued on the pre-existing trend to a slightly improved level of just below the target 80%. The PWC trend represents only one hospital so is not useful for comparison. The raw series with overlaid trends for this analysis are presented in the appendix.

**Figure 18 Emergency admission performance by external partner**

Three age groups have been identified of interest in analysing EAP: those aged 0-18 (children), 18-64 (adults) and 65+ (older people). The EAP varies markedly between these groups, with children having the best access followed by those aged 18-64, then older people. There is an ongoing improvement occurring in the eldest age group, with the second half of 2004 and the last six months of 2006 showing more rapid improvements in the performance level for this group.

CSRP projects focusing on improving access for older people will be of interest in future years as projects are implemented and the effects monitored.
5.3.2 Triage time

Target triage times exist for each triage category. However, triage categories 3 and 4 are generally the focus of analysis as these are most problematic. Triage categories 1, 2 and 5 have been mentioned below but the analysis is at only state and AHS level.

The performance targets by triage category are specified in Table 4. The performance threshold represents the percentage of patients who are expected to be seen within the maximum recommended waiting time.

**Triage category 1**

We have been advised by the NSW Health Department that the audited results for Triage Category 1 have been 100% since before the commencement of the CSRP. Hence no analysis of this performance indicator has been included in the report.

**Triage category 2**

80% of triage category 2 patients are expected to be seen within the benchmark time of 10 minutes. As shown in Figure 20, the series has remained fairly flat over the last 7 years, varying between 70 and 80%. There has been a period of continual improvement since mid 2004 with performance exceeding target in early 2006.
At the AHS level, triage category 2 performance has historically been worst in North Sydney/Central Coast AHS, with performance around the 60% mark up until July 2005. Since that point the series has trended towards the target 80%. All AHS’s are converging around or above the target level of 80%, excepting the Children’s Hospital, which has had around 100% performance throughout the entire series.

Of the three patient age groups, those aged under 18 have the best performance for triage category 2. Those aged 65+ are no worse off than those aged 18-64.
**Figure 22 Triage category 2 - performance target met by age group (trend) - NSW**

![Graph showing performance target met by age group (trend) - NSW](image)

**Triage category 3**

As noted above, the two problematic triage categories are triage 3 and 4. For this reason, additional analysis has been undertaken on both categories, as presented below.

Triage category 3 patients are recommended to be seen within 30 minutes. The target for this group is 75%.

Performance at the state level for triage category 3 patients has fluctuated slightly since January 2002. Since July 2005 over 600 new beds were added to the system and the CSRP commenced. Since this point there has been an improving trend.

**Figure 23 Triage category 3 - performance target met: NSW Jan 2002 to June 2006**

![Graph showing performance target met: NSW Jan 2002 to June 2006](image)

As shown in Figure 24, the series has been consistently below the target of 75%. However, the start of a trend towards improved performance has occurred since July 2005. By June 2006, performance was about 10% below the target.
The triage time performance for triage category 3 by teaching and non-teaching hospitals is displayed in Figure 25 below. The triage performance is worse for teaching hospitals and well below the target of 75%. Non-teaching hospitals are also below target. These series have both followed similar trends over the last seven years.

Metropolitan and non-metropolitan AHSs have been grouped and their triage category 3 performance graphed below in Figure 26. While the hospitals are still performing below the 75% target, a trend has emerged at this level in the last nine months towards improved performance and at June 2006, performance for non-metropolitan AHSs is just under target.
At an AHS level Greater Western AHS has been performing above target for the last 6-9 months, however the level of its performance fluctuates quite wildly. All other AHSs are below the target 75%. There is an upward trend appearing in most areas for the last few months of the series. However further data are required before strong conclusions can be drawn.

As shown in Figure 28, there is little variation in triage category 3 performance across age groups.
**Triage category 4**

70% of triage category 4 patients are recommended to be seen within 1 hour. Performance at the state level for triage category 4 patients has also been consistently below the target level. However, the performance is better than for triage category 3. Since July 2006 over 600 new beds were added to the system and the CSRP commenced. As shown in Figure 29, since this point there has been an improving trend.

**Figure 29 Triage category 4 - performance target met: NSW Jan 2002 to June 2006**

The trend since 2005 is seen more clearly in Figure 30. The level has now reached the performance target of 70%.
Figure 30  Triage category 4 - performance target met: NSW July 1999 to June 2006

Triage time performance for teaching and non-teaching hospitals is displayed in Figure 31. The triage performance is worse for teaching hospitals and well below the target of 70%. However, it lifted from 55% towards the 70% mark in the last 6 months. Non-teaching hospitals are hovering around the target percentage and are also showing an upward trend. These series have both followed similar trends over the last 7 years.

Figure 31  Triage category 4 - performance target met by teaching and non-teaching hospitals

Metropolitan and non-metropolitan AHSs have been grouped and their triage category 4 performance is shown in Figure 32. Non-metropolitan hospitals are performing around the 70% target although they are remaining at this level, which has been a steadying of the previous downward trend. Hospitals from the metropolitan AHSs have had a positive trend in the last 6-9 months towards improved performance and are now just on the benchmark of 70%.
At an Area level, the Children’s Hospital Westmead has had poor triage category 4 performance, with the performance level varying markedly, and remaining below 50% until early 2006. Greater Western and Greater Southern AHSs have been performing above target for the entire series. There is an upward trend appearing for many AHSs for the last few months of the series, Greater Southern AHS being the exception. However further data are required before strong conclusions can be drawn. The Children’s Hospital Westmead, South East/Illawarra and North Coast AHSs are all below the 70% target at June 2006.

As shown in Figure 34, there is a small amount of variation in triage category 4 performance across age groups. All age groups have been improving over the past 12 months and are now at
around the 70% target. The triage time performance is slightly worse for people aged 65+ than the 18-64 year age group, who are in turn slightly worse off than those aged below 18. This pattern was not found in triage 3 patients.

**Figure 34 Triage category 4 - performance target met by age group (trend) - NSW**

Triage category 5 is considered generally to be not problematic. For this group, 70% of patients are expected to be seen within two hours. Across the state this benchmark has been exceeded for the length of the series.

**Figure 35 Triage category 5 - performance target met - NSW**

All AHSs have generally been performing above the benchmark level except the Children’s Hospital at Westmead.
Amongst triage Category 5 attendances, performance has been slightly better for children from 2004 onwards, and slightly poorer amongst older people (see Figure 37).

**Figure 37 Triage category 5 - performance target met by age group (trend) - NSW**
5.3.3 Long waits (over 12 months) for surgery

Long waits for surgery have been defined as follows:

- Patients 'not ready for care' are excluded from the count.
- Patients waiting for obstetrics and renal procedures are excluded.
- The waiting time excludes time not ready for care.

Officers from NSW Health have advised us that this definition corresponds with current NSW Department of Health practice. However, the current Waiting Time and Elective Patient Management Policy (2006: 11) lists a number of further exclusions from the main count, which are not identifiable in the data we have obtained to date. Future work will investigate these additional exclusions in the next annual report.

Figure 38 shows the number of patients on the waiting list for over 12 months at the end of each calendar month from January 2002 to June 2006. A number of significant health policy initiatives are highlighted on the same graph. After increasing for two years to January 2005, the number of long waits decreased sharply from April to June 2005. The $10m state-wide elective surgery plan for long waits was implemented on April 2005. The decline continued subsequently to June 2006, when there were only 45 long wait cases remaining on the list. It is clear that the target of zero long waits by June 2006 has been met almost completely.

Figure 38 Number of people on surgery waiting list for over 12 months - NSW

Figure 39 shows the same data by AHS over a longer period (July 1999 to June 2006). The decreases observed state-wide are evident for every area in the state.
The pattern of declining long waits for surgery from March 2006 is also broadly consistent across hospital peer groups (Figure 40). The pattern for peer groups A and B was very similar from July 1999 to January 2003. In subsequent years, the long wait list increased faster for Peer Group A than for Peer Group B, but both declined at similar rates from April 2005.

Figure 40 Number of people on surgery waiting list for over 12 months by peer group

Figure 41 shows the same data by cohort. John Hunter Hospital is considered on its own. ABIP hospitals are grouped into the second cohort. All other hospitals are in the third cohort. The scale shown on the left hand side relates to John Hunter Hospital, while the scale on the right hand side of the graph relates to the other two cohorts. There seems to be little difference between the trends in the three series from April 2002 onwards. This is the point in time where the first access block project (Maggie) commenced at John Hunter Hospital. The long wait list decreased sharply at John Hunter hospital in the immediately preceding period.
Has the distribution of waiting time changed?

One of the risks of a performance indicator that emphasises long waits is that patients on the waiting list for shorter periods may not be treated until they approach the 12 month threshold. However, this does not seem to be occurring on a state-wide basis. Figure 42 shows the number of people on surgery waiting lists by waiting time and calendar month. As shown in previous graphs, the number of long waits declined from early 2005 to next to zero in June 2006. The number of patients on the waiting list for between 9 and 12 months also seems to have decreased. Importantly, the number of patients on the waiting list for shorter periods of time does not appear to have increased over the same period.
The average waiting time for routine admissions has increased considerably over the period under consideration (Figure 43). Increases to the trend series occurred up to April 2001 and in the two years to May 2005. Interestingly, the average waiting time did not increase subsequently, despite the considerable increases in routine surgery admissions amongst those waiting for more than nine months (described below).

**Figure 43 Routine surgery admissions - average waiting time (days) - NSW**

![Average waiting time chart]

**Why do people leave the waiting list?**

Regardless of waiting time, the majority of patients who leave the surgery waiting list do so for routine admission (for their operation). There has been no major change in the reasons for patients leaving the waiting list, although the volume of those ‘not ready for care’ has fluctuated over time. More people have been offered surgery as activity has increased, which may have resulted in more people being not being ready at the time. This may have influenced the number of patients who were not ready for care. The following two figures show removals from the waiting list by reason for removal and calendar month. Figure 44 shows this for long wait cases, while Figure 45 shows the corresponding data for people who were on the waiting list for 9-12 months prior to removal. In both figures the number of emergency admissions averages less than three per month, hence the line for that variable is barely discernible.
**Figure 44** Long wait cases (more than 12 months) by reason for removal from waiting list - NSW

(a) ‘Not treated’ includes ‘unable to contact’, ‘admission not required – patient’s advice’ and ‘admission not required – doctor’s advice’. ‘Admission contracted’ includes ‘admission contracted to another public hospital’ and ‘admission contracted to private hospital’.

**Figure 45** People on waiting list for 9-12 months by reason for removal from wait list - NSW

(a) ‘Not treated’ includes ‘unable to contact’, ‘admission not required – patient’s advice’ and ‘admission not required – doctor’s advice’. ‘Admission contracted’ includes ‘admission contracted to another public hospital’ and ‘admission contracted to private hospital’.

Figure 46 combines three inter-related series of data. It shows the monthly change in the long wait list (over 12 months) and the number of routine admissions for people who were waiting for over 9 months. It also shows the monthly change in people who are ‘not ready for care’, but have been on the waiting list for over nine months. As mentioned above, the long wait list count excludes people who are not ready for care.
Figure 46 reiterates earlier results, showing a sustained decrease in the long wait list. The number of people on the long wait list fell in fifteen of the sixteen months to June 2006. Over the same period, the number of routine surgical procedures amongst people waiting for over nine months appears to have increased considerably. As shown in Figure 45, above, the increase was concentrated amongst people who were on the waiting list for nine to twelve months. Figure 46 also shows the number of patients who were waiting for over nine months but were not ready for care. The change in ‘not ready for care’ patients tends to fluctuate from month to month but there was an increase for five successive months in the first half of 2005, during a period of increased surgical activity. The series then stabilised again.

**Figure 46 Change in long waits (over 12 months), routine surgery (over 9 months) and change in ‘not ready for care’ (over 9 months) - NSW**

![Graph showing changes in long waits, routine surgery, and change in not ready for care over time]

5.3.4 Overdue urgent surgical cases

Urgent long waits for surgery are defined as Category 1 patients waiting over 30 days. As for the long wait (over 12 months) indicator, patients ‘not ready for care’ and patients waiting for obstetrics and renal procedures are excluded from the count. Waiting time is calculated as the number of days since the patient was classified as Category 1.

Figure 47 shows the overall series. The number of urgent long waits decreased by 73% in just two months to June 2006. Prior to that, the series had increased steadily over most of the period to January 2005, before decreasing slightly in the subsequent year.
Figure 47  Number of overdue urgent surgical cases - NSW

Figure 48 shows the same data by AHS. The overdue urgent surgery list was reduced to zero in June 2006 in four areas (Children’s Hospital; Sydney West; Greater Southern and Greater Western). Substantial reductions were also observed for the other areas. The overdue urgent surgery list increased considerably for Hunter/New England in the year to April 2006, before decreasing over the next two months.

Figure 48  Number of overdue urgent surgical cases by area health service

The pattern of declining overdue urgent surgery from January 2005 is broadly consistent across hospital peer groups (Figure 49). The major referral hospitals had the largest number of patients overdue for urgent surgery and so improved the most.
Figure 49 Number of overdue urgent surgical cases by peer group

![Figure 49](image)

Figure 50 shows the same data by cohort. As to be expected for a single hospital, the John Hunter data fluctuates more than the other two series. This includes a sharp increase in April 2006, followed by a similar fall in the following two months. The patterns for the ABIP and non-ABIP series do not differ greatly.

Figure 50 Number of overdue urgent surgical cases by cohort

![Figure 50](image)

Has the distribution of waiting time changed?

Figure 51 shows the distribution of waiting time amongst people waiting for urgent surgery. The decrease in overdue urgent series does not seem to have been accompanied by increases in the number of patients waiting for shorter periods.

Has the distribution of waiting time changed?
However, Figure 52 shows that the average waiting time for routine urgent surgery admissions increased considerably from July 2000 to January 2005 on both the raw and trend data. It decreased slightly in 2006. Closer investigation suggests that this increase is due to two factors. There has been a steady increase in admissions of overdue patients. There has also been a steady decrease in urgent patients being admitted within five days (see Figure 53).

**Figure 51 Number of people on urgent surgery waiting list by waiting time - NSW**

![Figure 51 Number of people on urgent surgery waiting list by waiting time - NSW](image)

**Figure 52 Average waiting time (days) for routine admissions for urgent surgery - NSW**

![Figure 52 Average waiting time (days) for routine admissions for urgent surgery - NSW](image)
**Why do people leave the urgent surgery waiting list?**

The majority of patients who leave the urgent surgery waiting list do so for routine admission. As for the overall long wait list, there has been no major change in the reasons for removal. The following two figures show removals from the waiting list by reason for removal. Figure 54 shows this for overdue cases, while Figure 55 shows the corresponding data for people who were on the waiting list for 21-30 days prior to removal.

**Figure 53 Routine admissions for urgent surgery by waiting time (trend) - NSW**

![Graph showing routine admissions for urgent surgery by waiting time (trend) - NSW.]

**Figure 54 Overdue urgent surgery cases (over 30 days) by reason for removal from waiting list - NSW**

![Graph showing overdue urgent surgery cases (over 30 days) by reason for removal from waiting list - NSW.]

**Note:** ‘Not treated’ includes ‘unable to contact’, ‘admission not required – patient’s advice’ and ‘admission not required – doctor’s advice’. ‘Admission contracted’ includes ‘admission contracted to another public hospital’ and ‘admission contracted to private hospital’.
**Figure 55 People on urgent surgery waiting list for 21-30 days by reason for removal - NSW**

![Graph showing number of people on urgent surgery waiting list for 21-30 days by reason for removal.](image)

**Note:** ‘Not treated’ includes ‘unable to contact’, ‘admission not required – patient’s advice’ and ‘admission not required – doctor’s advice’. ‘Admission contracted’ includes ‘admission contracted to another public hospital’ and ‘admission contracted to private hospital’.

**Changes in urgency status**

Our data do not allow us to examine downgrades in urgency status from category 1 to other categories (including ‘not ready for care’). We will endeavour to investigate this in future years.

**5.3.5 Off stretcher time**

Off stretcher time (OST) is the time between ambulance arrival and transfer of care. Data are presented here for the period from January 2003 to September 2006. However, these data are hampered by limitations in comparability over time. These limitations are:

- There is a discontinuity at April 2004. Ambulance priorities 1, 2 & 3 were included from April 2004. Priority 1 only was reported prior to April 2004. This change increased monthly volume by around 6000 cases per month, or 26% of the case load. Ambulance priorities are not identifiable in our data and thus the discontinuity cannot be avoided. This is regarded as the main discontinuity in the data and it is marked in all graphs presented in this section.
- There appears to be a second discontinuity at August 2003. Prior to this time, there are no data for Shellharbour, Shoalhaven, Wollongong, Albury and Wagga Wagga hospitals.
- The coverage of this data item has improved considerably over time. The percentage of cases with missing data has decreased from 44% in April 2004 to 5% in September 2006 (Figure 56). Whilst this is clearly an improvement, it may affect comparability over time. For this report, it is assumed that the data are ‘missing completely at random’, and hence that there is no correlation between the mechanism for missing data and off stretcher time. Note that the missing data series shown in Figure 56 is also affected by the discontinuities mentioned above, since hospitals which are completely omitted from the data could not be included in this calculation.
With the above caveats in mind, there appears to have been an improvement in the off-stretcher time KPI, which is defined as the percentage of cases over 30 minutes. The trend series decreased by twelve percentage points over two years. At September 2006 the trend series was at 20% (Figure 57).

The same data are presented by AHS in Figure 58. There was considerable variation between areas. Trend lines have not been fitted here due to very high proportions of missing values for some areas in the early periods. Substantial decreases occurred for most areas within Sydney in the two years from August 2004. The declines were greatest for Sydney West and Sydney South West. Declines are also observed for South-East Sydney / Illawarra and the Children’s Hospital at Westmead. It is important to note that the metropolitan areas have had the lowest proportions of missing data over this period, thereby adding credibility to this finding. There are no data available for the Greater Western AHS.
The same data are presented by cohort in Figure 59. There is little that can be said in relation to the impact of Maggie, since it commenced well before the period of data availability. The ABIP on the other hand commenced in June 2004. There does not appear to have been any great improvement in off-stretcher time performance by the ABIP hospitals for at least one year after commencement.

It has been shown that the proportion of cases with OST greater than 30 minutes has decreased in recent years. Figure 60 shows how the distribution of OST has changed over the period. The proportion of cases taking over 60 minutes has decreased, as has the proportion of cases taking between 30 and 60 minutes. Interestingly, the corresponding increase is concentrated amongst cases taking less than 20 minutes. The proportion of cases taking between 20 to 30 minutes has stayed reasonably constant. Thus the focus on a 30 minute threshold does not appear to have had any perverse affects on the distribution of OST.
Figure 60 Distribution of off stretcher time - NSW

![Distribution of off stretcher time - NSW](image)
6 Implementation

6.1 Project scope

Projects ‘in scope’ in the first year of the CSRP can be characterised in a 3x2 matrix, as shown in Table 6. The identification of each project is included in Appendix 2. The numbering system has been used solely for the external evaluation.

Table 6 Summary of facility-based and area-wide projects

<table>
<thead>
<tr>
<th>Project scope</th>
<th>Defined clinical area e.g. surgery, mental health, emergency medicine</th>
<th>Diffuse clinical area e.g. patient flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility-based project</td>
<td>CHW 1, GW 2, HNE 3, NC 1, SESI 2</td>
<td>HNE 5, NC 2, NC 3, NC 4, NSCC 2, SESI 1, SESI 3, SESI 4, SESI 5, SSW 3, SSW 4</td>
</tr>
<tr>
<td>Area-wide project with facility</td>
<td>GS 1, GW 3, NSCC 1, NSCC 3, SSW 1</td>
<td>SW 3, HNE 2</td>
</tr>
<tr>
<td>implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area-wide</td>
<td>SSW 2, SW 1, SW 2, HNE 1, HNE 4</td>
<td></td>
</tr>
</tbody>
</table>

The categorisation of some projects is open to debate, particularly the extent to which area-wide projects rely on facility-based implementation, but it can nevertheless be seen that there has been a strong concentration on facility-based projects. This is particularly the case in the three rural area health services – Greater Southern, Greater Western and North Coast. Sydney West is quite different to the other area health services with its reliance on area-wide projects.

The scope of an individual project can have various dimensions:

- The scale of the project objectives (how ambitious is the project?).
- The size of the project in terms of either clinical areas covered or geographical spread.
- The way in which the project is managed i.e. to what extent is there evidence of ‘scope creep’?

There is a fine balance between keeping the project ‘on track’ while carefully examining the issues that are in-scope for the project:

    It comes down to the scope of the project and certainly we had to be very careful because we were on strict times that we don't 'scope creep' and once you start where do you stop … so that was something we had to be careful, looking at those sort of things. (A)

It is far too early at this point to draw conclusions about whether facility-based projects are more successful than area-wide projects but it is clear that the latter have the potential to be more difficult to manage:

    The scope and the geography was definitely a problem – we really haven't tackled that well. The scope was huge. (P)

However, there are early indications in the responses to the Year 1 survey that (overall) more narrowly defined projects have achieved a higher level of clinician engagement and that this active engagement has extended into the implementation phase. This suggests that the more narrowly defined projects may prove to be more successful in the longer term in terms of achieving sustainable improvements.
The 2006 internal evaluation of the Maggie Program in the Hunter New England AHS has found that the most sustainable achievements were indeed from more narrowly-focussed projects and this adds weight to our early observations. The Maggie Program findings are particularly relevant given its longer experience with clinical redesign projects.

One question in the Year 1 Survey asked ‘what was the main objective of your project?’ Not surprisingly, the main emphasis was on improving access and patient flow i.e. improving performance rather than quality and safety (Table 7). Improving patient satisfaction, or indeed patient experience, is not the main reason projects are being undertaken. It should be noted that the response from some projects included more than one main objective.

**Table 7  Main objectives of CSRP projects**

<table>
<thead>
<tr>
<th>Main objective</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve access (ED admissions, surgery, mental health)</td>
<td>13</td>
</tr>
<tr>
<td>Improve patient flow (includes discharge planning)</td>
<td>10</td>
</tr>
<tr>
<td>Review the peri-operative patient journey</td>
<td>1</td>
</tr>
<tr>
<td>Develop a surgical dashboard</td>
<td>1</td>
</tr>
<tr>
<td>Improve patient satisfaction</td>
<td>1</td>
</tr>
<tr>
<td>Enhance the patient experience</td>
<td>1</td>
</tr>
<tr>
<td>Improved efficiency of the Sydney Operations Centre (Ambulance Service)</td>
<td>1</td>
</tr>
</tbody>
</table>

6.2 Process versus clinical practice

The emphasis within the CSRP is on redesigning the processes that underpin clinical practice / patient care, rather than the practice/care itself. This distinction is evident at the project level:

*For the projects we were doing, it was less about trying to change clinical practice, it was more about trying to change the way we manage patients or the way we look at things.* (P)

*There is a real sensitivity from the clinicians that they are doing their best to provide the absolute best clinical care … so the message we are selling them is that this is about the systems that support your clinical care.* (A)

One AHS commented that doctors have seen projects as having a non-clinical agenda and cannot see that there is any impact on what they regard as the delivery of direct patient care. The distinction between clinical care and non-clinical issues characterised by use of words such as ‘process’ and ‘patient flow’ is somewhat arbitrary and has the potential to confuse what CSRP is trying to achieve. It is analogous to the distinction between the technical (or clinical) aspects of care (which is the preserve of clinicians to judge) and the provision of a service, which includes the things that can be judged by patients. However, from a patient perspective it is all care and it is all service.

In any case clinical practice issues can and do arise:

*We decided that clinical practice wasn't going to be in the scope but work practice is interwoven with patient flow. It arose all the time really and the view that we took was that if there was no immediate specific danger to a patient then we wouldn't do anything about it.* (P)

*The issue of quality and safety is something that right from the first project was seen as something that was important and was raised by clinicians as 'this needs to be considered in the project as well as efficiency and patient flow' - we actually need to*
balance the different aspects of care. That was a very strong message from clinicians. (A)

One example where such a distinction can become problematic is with cardiology projects seeking to ensure timely referral from peripheral hospitals to hospitals with a higher level of care. This can be considered as a straightforward flow issue but it is interwoven with practice issues, in this example, in the peripheral hospital:

It is the practice bit we need to look at because the flow needs to occur regardless. (P)

6.3 Transformational versus incremental change

The business case for CSRP identifies that ‘what is needed is a new vision for healthcare delivery. To start with a blank sheet of paper and design processes with frontline staff ...‘ (p. 17). The clear aim is for transformational change (Figure 61).

Figure 61 Essential components for successful service redesign in health

The question then is the extent to which transformational changes are being made or whether the changes are more incremental in nature. Put another way, the extent to which processes are being redesigned versus the extent to which improvements are being made to existing processes.

The Year 1 Survey sought a description of the most important change in practice introduced relating to the project’s main objective. There were a range of descriptions of these changes and these are summarised in Table 8. The response from some projects included more than one ‘most important’ change in practice.

Table 8 Most important changes in practice

<table>
<thead>
<tr>
<th>Most important change in practice</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvements to the discharge process (including use of expected date of discharge and transit lounge)</td>
<td>9</td>
</tr>
<tr>
<td>New model of care in emergency department</td>
<td>4</td>
</tr>
<tr>
<td>Identify and action reasons for delay in patient flow (Jonah)</td>
<td>2</td>
</tr>
<tr>
<td>Improved referral processes</td>
<td>2</td>
</tr>
<tr>
<td>Whole of hospital approach to access block</td>
<td>2</td>
</tr>
<tr>
<td>Bed management meetings</td>
<td>2</td>
</tr>
<tr>
<td>Implementation of dashboard</td>
<td>2</td>
</tr>
<tr>
<td>Integration of services</td>
<td>1</td>
</tr>
</tbody>
</table>

5 Figure taken from the Clinical Service Redesign Business Case, February 2005
<table>
<thead>
<tr>
<th>Most important change in practice</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduling and rostering</td>
<td>1</td>
</tr>
<tr>
<td>Standardise processes</td>
<td>1</td>
</tr>
<tr>
<td>Staff coaching</td>
<td>1</td>
</tr>
<tr>
<td>Chest pain evaluation areas</td>
<td>1</td>
</tr>
<tr>
<td>Cardiology bed management</td>
<td>1</td>
</tr>
<tr>
<td>No comment (too early in project to answer)</td>
<td>2</td>
</tr>
</tbody>
</table>

To gain a better understanding of the solutions being developed as part of CSRP, rather than just the most important ones, the solutions from projects undertaken in the first year of CSRP (see Appendix 2 for details of which project solutions were included) were grouped based on a classification system for organisational interventions. Not all these solutions have been implemented. The results are summarised in Table 9, which includes examples of interventions in each category.

**Table 9  Categorisation of CSRP interventions**

<table>
<thead>
<tr>
<th>Category of intervention</th>
<th>No.</th>
<th>% of total</th>
<th>Examples of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in process sequences or organisation of processes</td>
<td>123</td>
<td>33.5%</td>
<td>Implement 4-2-2 or 3-2-1 model of care in ED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Streaming / fast-tracking of patients in ED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clinical management plans for frequent attenders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improved triage process</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Streamline allied health referrals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Active use of expected date of discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New test ordering process for Pathology and Radiology</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Roll out of bed board</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Implement Jonah</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weekly buffer meetings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Patient transport process flowchart</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improved pharmacy script ordering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Standard handover form</td>
</tr>
<tr>
<td>Changes in capacity planning</td>
<td>75</td>
<td>20.4%</td>
<td>Review ED staff roster</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Theatre staff scheduling template</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Align staffing with service demand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Escalation plan for access block</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Improve the availability of ICU/HDU beds</td>
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<td>Investigate pooling of elective surgery lists</td>
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<td></td>
<td>Adopt and implement start times in operating theatres</td>
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<td></td>
<td></td>
<td></td>
<td>Capacity planning tool for cardiology</td>
</tr>
<tr>
<td>Changes in physical structure, facilities or equipment</td>
<td>31</td>
<td>8.4%</td>
<td>Increase capacity of recovery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Internet access</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>CSSD communications</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Category of intervention</th>
<th>No.</th>
<th>% of total</th>
<th>Examples of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment loan pool</td>
<td></td>
<td></td>
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<tr>
<td>Upgrade iSTAT machine in Pathology</td>
<td></td>
<td></td>
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<tr>
<td>Area-wide transport service</td>
<td></td>
<td></td>
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<tr>
<td>PA System</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Presence and organisation of quality or performance monitoring mechanisms</td>
<td>27</td>
<td>7.4%</td>
<td>Referral feedback loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Evidence based practice</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Surgical dashboard</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Use of data by frontline managers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Implement standard set of reports</td>
</tr>
<tr>
<td>Staff organisation</td>
<td>23</td>
<td>6.3%</td>
<td>Communications clerk in ED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Identify discharge planning champions on wards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recruitment and retention of nursing staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nursing management structure in operating theatres</td>
</tr>
<tr>
<td>Integration of services or changes to improve continuity of care</td>
<td>19</td>
<td>5.2%</td>
<td>Improved ED to inpatient handover</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Management of medical conditions in mental health unit</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Follow-up of consumers discharged from ED</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Enhanced follow-up of ‘did not wait’ patients from ED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Integration with primary care sector</td>
</tr>
<tr>
<td>Revision of professional roles and changes in skill mix</td>
<td>15</td>
<td>4.1%</td>
<td>Code of practice for nurse specials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increase nurse-initiated expected date of discharge</td>
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<td></td>
<td></td>
<td></td>
<td>Role of bed manager</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Improve cross-skilling of ED and mental health staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clarify roles of doctor, nurse &amp; communication clerk in ED</td>
</tr>
<tr>
<td>Cooperation with external services or communication and case discussion with off site health professionals</td>
<td>14</td>
<td>3.8%</td>
<td>GP referral form</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Service provider directory</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nursing home placement process</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Improved communication between wards &amp; ACAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased frequency of magistrate hearings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased use of telehealth</td>
</tr>
<tr>
<td>Introduction of clinical multidisciplinary teams</td>
<td>12</td>
<td>3.3%</td>
<td>Daily staff care coordination meetings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multidisciplinary intake and allocation meetings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clinical review meetings</td>
</tr>
<tr>
<td>Changes in the setting/site of service delivery</td>
<td>9</td>
<td>2.5%</td>
<td>Outpatient clinics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Day treatment programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Enhanced telephone triage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>23 hr ward for elective surgery</td>
</tr>
<tr>
<td>Mechanisms for dealing with patients suggestions or complaints</td>
<td>9</td>
<td>2.5%</td>
<td>Formalised consumer meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Patient information brochure</td>
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<td></td>
<td></td>
<td></td>
<td>Engagement of consumers/carers in care planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Determine surgical customer satisfaction</td>
</tr>
<tr>
<td>Education programs</td>
<td>7</td>
<td>1.9%</td>
<td>Unit orientation pack</td>
</tr>
</tbody>
</table>
The solutions identified across most projects are very similar, with one third involving changes in process sequences or the organisation of processes - classic process redesign.

Whilst the emphasis of redesign differs somewhat, but not much, across the projects, the scope of what is targeted for redesign is broad. The only consistent exclusion is clinical decision making and care delivery although the reference to the delivery of 'evidence based care' in some projects suggests that this area is being opened up for potential redesign.

Using the above list of categories as a template, there are a number of redesign themes or directions that are consistent in the majority of project documents. In broad terms they are to:

- organise and structure services around patient need, rather than health professional need
- ensure the best use of resources by aligning capacity with demand
- see the big organisational picture
- increase service integration (contrasted with existing fragmentation)
- formalise, clarify and, where required, redesign roles and responsibilities
- build more effective teams by increasing communication
- use constraint and performance data to drive daily care priorities
- constantly review priorities and what needs to be done.

With regard to sustainability, the project documents were characterised by a relative lack of discussion about capacity/capability building and learning.

One interesting finding from our interviews was that the process mapping work being undertaken as part of the diagnosis phase has uncovered instances where processes that staff thought were in place did not exist in quite the way they thought:

> It has become apparent that when people talk about systems there have actually been no systems in place, it's been very driven by individuals, especially some of the patient flow stuff in hospitals there has been no system for patient flow so some of the stuff has been built from scratch. The surgery scheduling and that type of stuff, there's been tools developed now which will help assist with a system that has been in place but wasn't working to the best of its capability. (D)

> (There was) a lack of clarity in the processes that everyone believes are in place but probably aren't as clear as everyone likes to think they are. (P)

The Jonah software was implemented in several hospitals in Northern Sydney Central Coast AHS and South Eastern Sydney Illawarra AHS. This initiative is essentially about better synchronising existing processes rather than developing new processes. The goal is to synchronise all the
individual pieces of care to minimise delays so that, for example, when a social worker visits a ward to see a patient the patient is there on the ward, rather than somewhere else. When it works well it is an excellent solution:

*When everything was working, it was working in an environment where there was a real buzz in the air, a real humming; there was a real sense of energy. It literally slows the system down and because of that you can actually get better throughput because all of those extraneous little problems, constraints, that you have are gone so you can actually focus on what it is you need to do. When it works it’s a great feeling and it’s like working in a different place.* (P)

The Central CSRP to date has been very directive in terms of what needs to be achieved, with projects selected largely on the basis of the potential to improve the performance KPIs. Once projects are selected and their targets set, each project is expected to develop and own their solution/s. There is a general consensus that there is flexibility to create ‘bottom up’ solutions:

*I think we have got a full run of solutions ... if it works, it works.* (A)

*If the solution can deliver, great. Your criteria for solution can’t be too costly, all those standard criteria, but I think part of this is really trying to encourage people to develop their own solutions.* (A)

In some cases CSRP has provided the impetus to implement changes that staff had wanted to do for some time but did not have the resources to do.

There are two caveats to this:

1. Some external partners are thought to come with their own particular ‘bag of tricks’ and try to lead the solutions in that direction:

*I think a lot of it was all premeditated. I think really that they (the external partners) came with what solutions they wanted … I think it was very cleverly directed to the outcomes that they already had in their head before they came.* (P)

*I still found at times they will get a set on how they see things and where they think things should go and don’t always appreciate that from health’s perspective things may well have to head in a slightly different direction.* (P)

2. The Department’s own work on developing models of care which can encourage picking a ready made solution which may not actually fit well with the problems in a particular service:

*The Department’s become aware of certain solutions that they think are a bloody good idea. What’s happening is that they then pick up these solutions and develop a model of care and then go and sell it to everybody saying ‘this is the answer to your problems’.* (A)

One of the outcomes of the short time frame for the initial diagnosis/solution design phases can be pressure to implement ‘quick wins’:

*There’s an incentive to do quick wins so you keep your clinicians on side in the facilities, to actually show them that this isn’t just another project that we’re going to do, get a report and shelf it, like its been done before.* (D)

The aim of CSRP is transformational change. However, by the time that vision is put into practice the result is a mix of quite standard interventions with the emphasis on smaller-scale, incremental change. There is a natural bias towards implementing ‘quick wins’ rather than more complex
solutions and in some cases it is a matter of tidying up processes that staff thought were in place but proved not to be.

Although this is at variance with the stated aim of the CSRP business case, there is nothing inherently wrong in this. What is different with CSRP is the sheer number and range of solutions being identified, with an emphasis on system-wide rather than local engagement. Individual solutions may not be as important as the collective effect of multiple solutions:

> Many projects that have been done before, I’m talking about introduction of EMUs, introduction of CINs, rapid assessment teams, they were all isolated solutions … whereas clinical services redesign … it has led to a system-level engagement. I’m talking area health service, hospital executive and previously the projects that were done were locally driven, owned by the emergency department, didn’t engage the rest of the hospital… therefore issues happened and they failed whereas clinical service redesign has brought all those groups together. (D)

This suggests the need to reflect on what CSRP is trying to achieve compared to what it is achieving. Is the vision for the next stage still to strive for ‘radical’ transformational change or will incremental change suffice? What is important in the longer term is that the language reflects the reality, which means either that the language of the program will need to be ‘stepped down’ to match the more limited nature of the changes that have been achieved, or that the changes need to begin to be ‘stepped up’ to match the higher level ambitions inscribed in the language of the program.

6.4 Patient focus

Focusing on patients, facilitated by the use of terms such as ‘patient journey’ and ‘patient experiences’, is a core goal of the CSRP. In addition to any benefits to patients that may accrue, two main impacts on staff are emerging. One is that it provides a mechanism for different departments or groups of health professionals to work together on neutral ground. The other is to encourage a patient-perspective on the access KPIs, particularly in emergency departments:

> The basic principles of the projects are that they are patient-focused and they follow the patient journey, I think that has helped in looking at our services across the area. (A)

> One of the lines that we push really hard is that this is around patient experience and this is around patient safety and clinical practice and all the rest of it. We keep coming back to the patient experience so that when you've got that argy bargy you want to do it this way, you stop and ask 'what does the patient want? (A)

> It's not about you and it's not about us, it's about the provision of care and how we focus our care, how we deliver our care to the patient, so really focusing in on that and getting them all to think more about that than actually how they're feeling about it and 'you've got this and we've got that'. (P)

> We talked more about 'what do people really want when they come to hospital' - they want reassurance, they want symptom relief, and the diagnosis and all that stuff which is quite important to us is not really that important to the patient - what they want is to know that they are going to be OK and to get some relief from their pain or their distress or whatever. We weren't trying to move work from doctors to nurses to save money we were trying to give patients what they really wanted. (P)

> If someone says 'I'm sick of reporting on triage 3' you say, no, no, no, it's not about that it's about the fact that this person with their clinical symptoms should be seen within 30 minutes and if it was you, you would want to know that you were going to be seen within 30 minutes – take it back to what it’s measuring. (P)
We return to this issue in the final discussion reiterating that it is the strong focus on experience in the CSRP that gives it its distinctive quality and marks it out from other redesign projects. But it is the balancing of this with safety and performance issues that will determine its ultimate success. Furthermore, as the quotes above suggest, it is the focus on quality and patient experience that is most likely to get clinician engagement, followed by safety and performance – hence the need to continue to frame CSRP in this 3-dimensional way.

6.5 From diagnosis and solution design to implementation

Responsibility for moving from the solution design to implementation phases varies from area to area. At one end of the spectrum managers are expected to implement project solutions because that is seen as part of their routine job. Within this approach, there is a distinction between implementation within one’s own department and responsibility for broader implementation. In the case of area-wide projects, the latter can involve working with staff from across the area. For many, this is difficult to do while holding the day-to-day responsibilities of managing a busy department. At least one area has found is that this management-centric approach has slowed down some aspects of implementation.

At the other end of the spectrum is ‘supported implementation’ which consists of using external partners and some backfilling of staff to assist with implementation. Supported, consultant-centric, implementation ceases when the external partners leave but the CRU continues to support implementation for another 6-8 weeks. From that point on, implementation becomes the responsibility of the respective managers.

The situation has arisen in some projects where those responsible for implementation were not involved either in the diagnosis or the solution design phases, leading to fragmentation and various delays, handover and ‘ownership’ problems. Given the scale of some projects and the difficulty in anticipating what solutions may arise from a particular project, this is not surprising. It suggests that great care needs to be taken in selecting those to be involved at project commencement to try and avoid this problem. This was well expressed by one of those interviewed:

_The project itself sets up the conditions for a successful implementation and one of those conditions is generating ownership of the solutions. (A)_

In some projects there has been a ‘disconnect’ between the upfront diagnosis and solution design phases and implementation:

_I think that the segmentation of the initial work … separate from the solutions and implementation phase has been a real hiccup. It hasn't flowed very well because of the obvious reasons that there were different teams from (the external partner) and from our side on both of those sections. (P)_

_I think where we probably did go wrong … the person who started the project didn't finish the project. (P)_

In part, this situation arises because separate work orders are issued to the external partners for the diagnosis and solution design phases and, if used for that purpose, for implementation. At the beginning of each project little may be known about what will be implemented, making it difficult to engage an external partner from diagnosis right through to solution design.

This is consistent with the findings of the CSRP Program Review. It commented on the difference between the initial stages of a project with ‘significant resource investment in the form of the external partners, CRU support and backfilling of clinicians’ and the latter stages of implementation and sustainable change where ‘there is the potential to lose focus and momentum in the process.’
The external partners certainly see the importance of implementation and the need to avoid seeing it as an afterthought or add-on:

*People in the areas have a lack of understanding in what it takes to implement something. Analysis is hard work, but implementation is a lot lot harder … but they haven’t copped to that yet.* (EP)

*Loads of meetings and planning and then a dead end… the gonna do something gives you the warm and fuzzies, but the actual doing is scary.* (EP)

In response to this, consideration is being given in some quarters to using the external partners less at the front end of projects (diagnosis, solution design) and more for the implementation. Whatever the solution, it needs to be recognised that because the implementation / intervention / action phase is more important than any other and possibly the most difficult to achieve this is where the resources and skills mostly need to be targeted.

In the latter half of 2005 several projects, particularly those implementing the Jonah software, moved very quickly to implementation, prompting the comment that this provided limited opportunity to fully engage all key stakeholders. One interviewee suggested a cautionary approach to implementation:

*I didn't want to rush it because people try to rush through projects and change but if it's not done correctly it hits the wall ... and if you lose them you lose them.* (P)

The quotation offers a powerful reminder that implementation is not just a technical matter but an organisational and organisational development (OD) matter as well, one that is about building ownership and commitment to change and weaning people away from traditional processes and practices and not just plugging in the new solution. OD and change management skills are therefore paramount if CSRP is to be successful. We return to this issue later.

### 6.6 Implementation and resources

There appears to be a fairly clear message across most area health services that CSRP should not be seen simply as a bid for more resources. Inevitably though, situations arise where solutions are derived that require more resources. This gets handled in different ways:

*A submission is prepared that gets put in the pile with all the other priorities. This is frustrating and it's a real risk to the program because people go 'what's the point'?” (A)*

*The general understanding is that solutions won’t cost a lot of money, if any, but it shouldn’t rule out anything.* (A)

*We have got ourselves in trouble in projects where expectations have been raised up front or people have gone into the project with hidden expectations of additional resources and that’s driven the way they function in the project – that hasn’t been managed properly and there was disappointment at the end.* (A)

In some areas the message about ‘within existing resources’ is not so clear. This can result in a delicate balancing act - at the beginning of projects front line staff are not told that they must limit themselves to cost neutral solutions because that would ‘squash expectations’ for being involved and at the same time managers hope that the solutions that are selected do not cost additional money that they do not have and try to manage the situation as best they can when the time arises. This is reliant on staff taking a fairly realistic approach to what is possible. To a degree there is an attempt to contain expectations by getting staff to focus on systems. At the other end of the spectrum no restrictions are placed on projects:

*The ballpark was open.* (P)
The CSRP Program Review identified a degree of expectation that resources will be available to implement solutions and that area health services will need to proactively manage budgets and expectations. However, this is difficult to do when embarking upon a project that may result in some unforeseen solutions that require additional resources. The principle of CSRP is that the program is cost neutral but one of the lessons of the ABIP is that those involved frequently commented on the difficulty in finding resources to enable improvements to be implemented and indicated that greater success could have been achieved with more resources to implement changes. 

There are examples where additional resources have indeed been used to implement CSRP solutions, for example, for additional staff or additional computers.

6.7 External partners

The external partners have been a key feature of the CSRP. In general, those who have worked closely with external partners have enjoyed the experience, learnt a lot and valued the different perspective they bring to the health system:

- [The external partners have been] like a breath of fresh air. I want to know how they recruit because we could really learn something from their recruitment practices. (A)
- The program would not be where it is now without the external partners – they have been integral to the success so far. (A)
- They pushed us quite a bit which was probably what we needed. There’s a lot of skilled people in the hospital who can look at problems now in an entirely different light. (P)
- The biggest thing I got out of it was probably the way their minds tick; it’s very business orientated, looking at risks and ‘as is’ process, and working their way through gradually and I found that really beneficial to me … I pretty much use it on an everyday basis now –I actually have some structure around what I am going to develop. (P)
- This group has been able to get into people’s minds … I’ll work with you and show you how to do that. (A)

The attributes and qualities of individual consultants regardless of which external partner they work for are recognised as being more significant than the choice of external partner per se, although this sentiment from those interviewed is tempered by the knowledge that most staff have only worked with one of the external partners:

- With the external partners it is not the company it is the individuals you get and we’ve experiences of both ends of the spectrum … some of them were excellent … if you get a good one it doesn’t matter what company they work for [this interviewee had worked with two external partners]. (A)

The external partners are seen as being very time-focused and unaccepting of delays that those working in the health service regard as normal. Areas are starting to think about ‘trying out’ other external partners to the ones they have been using so far, primarily to expose themselves to different techniques and ways of working. Some have found working with the external partners to be quite intimidating (albeit in a positive way):

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When they first started working with us they strode into town and it was like a whirlwind … At the beginning we had no staff, no premises, we had no knowledge and we had no bloody idea! (A)

One issue is deciding which projects to involve external partners in. There is a range of views on this. Some interviewees thought that external partners are more adept at doing facility-based projects rather than area-wide projects. Some thought that the complexity of area-wide projects is precisely the reason why external partners should be involved in such projects. To varying degrees staff are starting to think of the different ways external partners might be used to maximise the benefit of their involvement – for particular types of projects, to a greater or lesser extent in different stages of projects, or for projects requiring lots of data analysis. Some area health services are starting to undertake projects without external partners, relying instead on support from their own CRUs.

There are some concerns around external partners but these are largely restricted to issues regarding individual consultants, skills transfer and differences in knowledge or skills between the external partners and health service staff:

   Working with external partners is good but I've found we are constantly watching that we're getting what we have asked for and in the area of skills transfer maybe we didn't get what we were looking for. (A)

   Because this was about a cultural change program, it was difficult for them to really understand some of the issues that we were bringing up to them, and they would bring solutions they had to deliver, so there wasn't time to actually sit down and really explore it a lot more (A).

   We've had some relationships with the external partner that have been much more successful than others and that's been due to the individual consultant assigned to project. (A)

   The (external partner) staff tended to not utilise the clinical knowledge of some of the staff and use them more as lackeys. (P)

When there has been dissatisfaction with a particular individual, that person has been speedily replaced once the issue has been raised with the external partner. As with the learning that is going on with so many aspects of the CSRP, staff within area health services are becoming more adept at ensuring the work orders for external partners more accurately reflect the kind of skills transfer they require. Many commented that they felt the external partners had learnt as much from health staff as the staff had learnt from the external partners – which is probably what the notion of a partnership is all about.

6.7.1 Skills transfer and development of quality and service improvement skills

The Year 1 Survey asked two questions about skills transfer from the external partner:

- How useful were the techniques used by the external partner?
- How much did the project team learn in terms of new skills or knowledge from the external partner?

The responses are summarised in Figure 62.
Clearly there is a very strong degree of agreement that the techniques used by the external partners were significantly or moderately useful and the amount of learning was likewise either significant or moderate.

Data management, project management and change management skills were the skills most frequently learned (as measured by the number of projects identifying this) from external partners (Table 10).

**Table 10 Knowledge and skills learnt from external partners**

<table>
<thead>
<tr>
<th>Knowledge or skill</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data management skills</td>
<td>9</td>
</tr>
<tr>
<td>Project management skills</td>
<td>8</td>
</tr>
<tr>
<td>Change management skills</td>
<td>7</td>
</tr>
<tr>
<td>Facilitation of meetings and workshops</td>
<td>6</td>
</tr>
<tr>
<td>Communication skills</td>
<td>5</td>
</tr>
<tr>
<td>Time management skills</td>
<td>4</td>
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<tr>
<td>Process mapping</td>
<td>4</td>
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<tr>
<td>Presentation skills</td>
<td>4</td>
</tr>
<tr>
<td>Stakeholder management</td>
<td>4</td>
</tr>
<tr>
<td>Using evidence to make decisions</td>
<td>4</td>
</tr>
<tr>
<td>Project governance (structure for the project)</td>
<td>3</td>
</tr>
<tr>
<td>Computer skills</td>
<td>3</td>
</tr>
<tr>
<td>Implementation of strategies</td>
<td>3</td>
</tr>
<tr>
<td>Risk identification and management</td>
<td>2</td>
</tr>
<tr>
<td>Report writing</td>
<td>2</td>
</tr>
<tr>
<td>Improved problem solving</td>
<td>1</td>
</tr>
<tr>
<td>How not to manage external stakeholders</td>
<td>1</td>
</tr>
<tr>
<td>Recognise significance of patient input</td>
<td>1</td>
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</table>
This list accords quite well with the range of skills identified in the initial CSRP business case as being necessary for the reform process:

- Business process redesign
- Expert independent facilitation
- Methodology development
- Program and project management
- Data analysis and reporting
- Change management
- Management skills development
- Implementation skills.

The external partners identified a number of skill gaps – data analysis and interpretation (looking at the data objectively and deciding what it means), implementation skills, managing and delivering change, project management and governance. There is also a lack of business understanding, especially in front line managers, and a lack of a breadth of experience and knowledge, especially in rural Areas.

The external partners drew a distinction between the reactive mode of practice that can characterise much of the work in the health service and the structured approach required by projects:

*Biggest skill gap is a framework and a process for identifying what the problems are, and then making the changes that are needed – basically change management. [There is a] dearth of data analysis skills, especially in nurses. (EP)*

*Something as simple as managing meetings … it’s unbelievable how much time is wasted … in terms of the meetings that happen that never really get anywhere. (EP)*

*… in the health environment traditional training hasn’t been surrounding a change journey … it’s been around patient care … this is a very new topic for people. (EP)*

Although a considerable degree of skills transfer is occurring from external partners to members of project teams this is not seen (by the external partners) as being sufficient to create sustainability.

*Sustainability is about the empowerment of the bottom layer of people, the nurse unit managers, the clinicians. If we upskill them to the tipping level, where they can actually identify the problem themselves and know what the process is to set in train a process, a project, whatever, to fix the problem. (EP)*

### 6.7.2 Customer satisfaction and relationship performance of external partners

At the completion of each work order or major milestone stakeholders from the Health Department and relevant area health service are surveyed and asked to rate the performance of the external partner according to customer satisfaction (which includes 16 items) and relationship performance (6 items). The rating is normally undertaken by four people from the Health Department and four people from the area health service. Each item is rated on a scale of 1 (strongly disagree) to 5 (strongly agree). Some work orders cover more than one project. The results from 16 of these surveys have been made available to us and include all four external partners, with nine ratings for one partner, three
ratings for another partner and two ratings for each of the remaining two partners. The projects covered by these surveys are listed in Appendix 2.

In Table 11 the 22 items are ranked according to the average score (by area health service staff) across all 16 work orders. The items with background shading are those included in the relationship performance component of the survey. Whilst the range from lowest to highest score is relatively small it should be noted that, although the range of possible scores on each item is 0-5, it is quite uncommon for any item to be scored less than 3.5. Interestingly, two of the lowest rated items were ‘the team had the appropriate mix of skills’ and ‘the team had the appropriate mix of experience’.

**Table 11  Customer and relationship performance of external partners**

<table>
<thead>
<tr>
<th></th>
<th>AHS Average score</th>
<th>DOH Average score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Their management of the work order was professional</td>
<td>4.5</td>
<td>4.2</td>
</tr>
<tr>
<td>The EP participated in the development of solution/process and implementation</td>
<td>4.3</td>
<td>4.2</td>
</tr>
<tr>
<td>The team demonstrated high levels of commitment to achieving our goals</td>
<td>4.3</td>
<td>4.2</td>
</tr>
<tr>
<td>The methodology adopted was effective</td>
<td>4.3</td>
<td>4.2</td>
</tr>
<tr>
<td>The EP effectively engaged with CE and executive / DDG and their executive</td>
<td>4.3</td>
<td>3.8</td>
</tr>
<tr>
<td>The EP developed or helped to develop an appropriate &amp; sustainable process/solution</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>The team worked well with the CRU, project team and clinical staff</td>
<td>4.2</td>
<td>4.3</td>
</tr>
<tr>
<td>They provided appropriate levels of feedback on progress and issues</td>
<td>4.2</td>
<td>4.1</td>
</tr>
<tr>
<td>The EP actively participated within the CSRP Relationship Council</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Our staff’s work-related skills have been enhanced</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>The EP established effective working relationships with the CSRP office and DDG</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>The EP worked effectively with other advisory services including other external partners</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Their written and verbal communication skills were clear and effective</td>
<td>4.1</td>
<td>4.2</td>
</tr>
<tr>
<td>The team was of a high calibre</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>They understood what we wanted from them</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>The EP identified and managed key stakeholder groups effectively</td>
<td>4.0</td>
<td>3.9</td>
</tr>
<tr>
<td>The implementation planning of high quality and reflected shared understanding</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>They understood the health industry and its key business issues</td>
<td>4.0</td>
<td>4.3</td>
</tr>
<tr>
<td>The team had the appropriate mix of skills</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>The team had the appropriate mix of experience</td>
<td>3.9</td>
<td>4.0</td>
</tr>
<tr>
<td>The EP demonstrated effective engagement with consumers</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>They understood our culture</td>
<td>3.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Figure 63 shows the average score across all 22 items for the 16 projects for which ratings of the performance of external partners were available. In general, there is a reasonable degree of accord between the AHS and DOH ratings. The exceptions are project 2 which was very highly rated by staff of the area health service compared to the DOH rating and projects 9 and 12 which the Health Department rated much higher than staff in the area health services.
6.8 Systems and measurement

Everyone questioned on this issue agreed that use of data was crucial to undertaking a successful clinical redesign project. There appears to be an almost symbiotic relationship between staff buy-in and the use of data.

*The data that came from CSRP was well presented and meaningful and staff were interested and that helped push them towards compliance with the data that we put in. (P)*

*It was the cornerstone of what we were trying to achieve because it's what's telling us the story, it's what's telling us where the problems are, where the trends are, where we need to concentrate our efforts on. Prior to that I really don't feel we knew what our business was. (P)*

Two projects identified that they would have had a great deal of difficulty accessing and using data if they had not been fortunate enough to have someone with extensive IT skills or data management skills on the project team. The major frustration is that, in general, data requests have to be written from scratch, because there is no standard report available. There are multiple data collection definitions and IT systems and some data systems are more difficult to access than others.

One cardiology project found that much of the data sat in departmental databases that were difficult to access. Data are rarely available in the form that will meet the needs of those working on project teams. Given the generally short timeframes for the early diagnosis and solution design phases, the availability of good data early in a project is of particular importance.

In responding to the Year 1 Survey the following problems with data collection and analysis were identified:

- IT systems not integrated
- many free-standing databases
- manual data collection often had to be used
- lack of agreed definitions
- differences in skill level of staff accessing data
- limited external support for data management issues
- obsolete version of software
- lack of local IT support
- external partners requesting data that was not necessary
- requests for data from external partners not well defined.

Somewhat perversely, deficiencies with current data systems have resulted in some innovative project-level solutions, for example, the Admission and Discharge Activity Management (ADAM) software tool developed as part of the mental health redesign project in Northern Sydney Central Coast AHS (NSCC 1) which indicates patient flow and planned discharges over the ensuing three weeks. The program flags red or amber when planned discharges are less than expected according to historical length of stay data. All current patients in the mental health unit are identified according to their estimated date of discharge and the program prompts review of all patients who have stayed longer than 35 days. It allows decisions about when to discharge individual patients to be taken not only from the perspective of each patient but also from the perspective of what this will mean for the unit as a whole. The development of these project-level solutions is a pleasing development but still runs the risk of resulting in multiple solutions to meet local needs that may be difficult to sustain.

Once good data are readily available, it has an influence not only on the progress of the project but can also directly impact the KPIs:

_We had very poor compliance with EDIS data entry, and very inconsistent … so the numbers that were being sucked out of EDIS, into the HIE and up to the Department were flawed anyway. So if you fixed your data entry you can immediately have a better outcome…. so we knew we were going to get an immediate improvement there, we knew that. Having said that, the other process changes contributed to it. (A)_

_I don't know that we saw an improvement as much as we saw a more accurate presentation of what was happening. (P)_

### 6.9 What was not achieved by projects

The Year 1 Survey asked for a description of anything that projects set out to achieve but did not achieve. Very little was identified, the only issue mentioned more than once being the inability to implement solutions due to resource constraints, specifically:

- opening of satellite x-ray room in ED
- improved access to medical imaging after hours
- development of a satellite rehabilitation service at a peripheral site
- introduction of new surgical scheduling and rostering procedure (due to inability to recruit staff).

Other goals not achieved by specific projects were multidisciplinary involvement in discharge planning, a reduced number of cancelled elective operations (due to emergency cases and staffing issues), inability of key stakeholders to agree on implementation of a solution, and failure to fully engage VMOs after their ward rounds. One project noted that despite significant reductions in mental health waiting times in ED, the project had yet to achieve consistent performance on their
main KPI – mental health access block of < 20%. One response indicated that the timeframe for their project had been extended because project team leaders had to attend to their team leader role as well as their own duties.

6.10 Negative outcomes

With two exceptions, projects responding to the Year 1 Survey did not identify negative outcomes resulting from CSRP projects. One project reported the frustration of clinicians that a recommendation to open a high dependency unit was not adopted. Another project identified that the dissatisfaction of one surgeon (who believed that their elective surgery would be reduced) resulted in an escalation of issues that included involvement of the Australian Medical Association and the local media.

6.11 What helped and what hindered progress of projects

The Year 1 Survey requested a list of up to three factors or changes occurring at the same time as a project that helped the results that were achieved, and up to three factors that hindered the results that were achieved.

Three projects identified that they were assisted by additional beds, one was helped by additional resources for after hours mental health staff in ED and one was helped by increased staffing for a second triage nurse, implementation of fast-track and an additional orthopaedic registrar on weekends. One project was assisted by the establishment of a Community Acute Post Acute Care service.

Other factors that helped projects were (nominated by one project, except where indicated):

- other discharge planning projects (two projects)
- increased activity (which created pressure to improve systems of work)
- re-engagement of external partners for two week period following pilot ward rollout
- Surgical Services Taskforce
- Predictable Surgery Program
- political climate (with its focus on surgery waiting lists)
- strong leadership (two projects)
- the Health Department target to reduce long wait surgery to zero by 30 June 2006.

Six projects did not identify any factors that helped and two projects did not answer this question.

When it came to identifying factors that may have hindered achievement of results there was a very mixed range of responses, with no real patterns emerging. None of the factors were identified by more than one project and nearly all referred to routine day to day issues:

- Increased activity
- Lack of resources in radiology
- Insufficient computers on Jonah wards
- Not having a rehabilitation specialist
- Lack of information systems support and clear accountability for provision of data
- Large workload of some project leaders due to their substantive positions
- Not involving the project team with the writing of the project plan
• Rivalry with another hospital within the area health service
• Staff workload
• Limited access to VMOs
• Resistance to change from allied health staff
• Staff cynical about external reviews due to previous reviews
• Time spent liaising with the State-wide mental health project
• Health Department initiatives diverting staff from the project
• ED perceptions that there was not ‘whole of hospital’ support for the project
• Some of the recommendations from the Surgical Services Taskforce required capital expenditure
• Implementation of a 23 hour ward ‘it was not a popular decision – it lasted 1 month and was seen by most as a failure’
• No manager in a key position
• Lack of structure at some facilities made driving and achieving change difficult
• Health Department target for long wait surgery (this KPI was met at the detriment of other processes that were delayed due to the concentrated effort on this issue).

6.12 Reflections on what could be done differently

The Year 1 Survey requested projects to nominate what might be done differently (up to three things) if the project was starting over again. There were many different responses to this item; with the most frequently mentioned being issues concerning project set-up, training, links with stakeholders, the availability of ‘slack’ resources, and implementation – most of them unsurprising but nevertheless crucial to the success or otherwise of this kind of project.

Table 12 What would be done differently if starting over again?

<table>
<thead>
<tr>
<th>Phase/issue</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project establishment</td>
<td>More information for those seconded on to a project about what is required – e.g. timeframes, commitment required.</td>
</tr>
<tr>
<td></td>
<td>Identification and engagement of project leaders much earlier in the project.</td>
</tr>
<tr>
<td></td>
<td>Employment of full-time project leads rather than part-time project leads (to increase their availability for key meetings).</td>
</tr>
<tr>
<td></td>
<td>Adequate staffing at project commencement.</td>
</tr>
<tr>
<td>Training</td>
<td>Do internal training first prior to commencement of external partners.</td>
</tr>
<tr>
<td></td>
<td>Additional education for managers on dealing with resistance to change.</td>
</tr>
<tr>
<td></td>
<td>Development of team building skills.</td>
</tr>
<tr>
<td></td>
<td>More training of team members and leaders on project management and change management.</td>
</tr>
<tr>
<td>Better consultation / communication /</td>
<td>Increased level of consultation with clinicians.</td>
</tr>
<tr>
<td>engagement with stakeholders</td>
<td>More preparation time with allied health staff.</td>
</tr>
<tr>
<td></td>
<td>More regular team meetings of key stakeholders (to reduce load on project lead).</td>
</tr>
<tr>
<td></td>
<td>Greater involvement of frontline staff in project development and implementation.</td>
</tr>
<tr>
<td></td>
<td>Involve the teams in the define, measure and analyse phase of the project.</td>
</tr>
<tr>
<td></td>
<td>Better engagement of VMOs in planning the project.</td>
</tr>
<tr>
<td></td>
<td>Better communication to the hospital at the start of the project.</td>
</tr>
<tr>
<td>Phase/issue</td>
<td>Change</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Implementation</td>
<td>Involve whole of hospital earlier.</td>
</tr>
<tr>
<td></td>
<td>It would have been better to run the two patient flow projects in the area concurrently, rather than one after the other to allow for increased networking, more time to develop solutions and more time to implement changes.</td>
</tr>
<tr>
<td></td>
<td>Delay roll-out across the Area until local projects properly consolidated and lessons learnt.</td>
</tr>
<tr>
<td></td>
<td>Involve clinicians and managers responsible for implementation more at the beginning of the project.</td>
</tr>
<tr>
<td></td>
<td>Site implementation officers should be identified prior to commencement of implementation.</td>
</tr>
<tr>
<td></td>
<td>Allow time for changes implemented to have full effect.</td>
</tr>
</tbody>
</table>

Other suggestions included:

- Build in evaluation at the design stage rather than leaving it until post implementation.
- Communicate and celebrate success of the project more.
- Develop more refined solutions prior to the external partners leaving.
- Be more persuasive with external partners.
- Have a fully functioning CRU before engaging external partners.
- Project reports to be readable when printed in black and white.

## 6.13 Interpretations of project and implementation

An unexpected finding in interviewing those involved in the CSRP is that there are different interpretations of what constitutes a project and what is meant by implementation. In part, this depends on the perspective from which this is being viewed. To use an example: on the ARCHI web site there are separate sets of documents for two projects in the North Coast AHS – Lismore Base Hospital ED project and Lismore Base Hospital Patient Flow project. The latter project has two components, surgery and discharge planning. Hence, staff in the hospital distinguish three different projects. But from another perspective all three are one project because of the intra-hospital and managerial links. In some of the interviews we conducted there was talk of initiatives or projects, when what was meant was a piece of work to implement one solution arising from a project. Area-wide projects typically have facility-based components. An example of this is the Greater Western AHS discharge planning project at Bathurst, Orange and Dubbo hospitals. Whether this is one project or three depends on who you ask.

In some cases implementation means further work on a solution to refine what needs to be done or achieve standardisation in a particular process. For example, a solution for a surgical project might be a standard request for admission form across an area health service. This is followed by a process of coming up with the required form – some will consider this implementation. From the perspective of an impact on patients or staff, implementation only starts when the form is being used.

This is a natural consequence of the nature of the CSRP and, of itself, is not a problem other than for those trying to keep track of what projects have been undertaken and what has been implemented. However, it is symptomatic of a bigger issue: there is a certain ‘disconnect’ in some cases between the initial upfront component of a project (diagnosis and solution design) and the much more difficult, but much less visible, work of implementation.

The CSRP Program Review made a similar distinction, noting that ‘most Areas have just completed the first round of projects and have just or are about to commence the implementation phase’. It also mentions ‘the project phase’. Both of these comments imply that a project is somehow distinct from implementation.
7 Key success factors

Ten key elements or success factors of performance and service improvement strategies have been identified from previous research into similar, contemporary, initiatives in health care as well as the broader organisational development and change literature. These ten Key Success Factors (KSFs) are being used in the evaluation to provide a framework for considering the three challenges of implementation, spread and sustainability with most of the factors potentially crossing all three. The ten KSFs are:

1. the Program change model and approach itself (e.g. what is the balance between top-down targets and bottom-up innovation and is it the right one?)
2. role of the Centre and program governance (e.g. how efficient and effective is the Program infrastructure in terms of strategy, planning and coordination?)
3. stakeholder engagement, participation and commitment (e.g. how well engaged with the Program are clinicians at the front-line level?)
4. effective local improvement teams (e.g. how effective are the local teams in terms of leadership, roles and processes?)
5. leadership (e.g. has a multi-level leadership system been established to link the different levels of the health system? How inspiring, energising and transforming is the leadership system?)
6. effective local implementation / change management skills / processes (e.g. how effective are the change management processes and are the relevant change management skills being successfully transferred to local teams)
7. shared learning, knowledge and skills (how and to what extent is there shared learning across the Program?)
8. quality and service improvement skills, methods and techniques (e.g. how good is the local knowledge of organisational development and service improvement techniques?)
9. systems and measurement (e.g. how good are local and state-wide systems for monitoring performance, safety and quality?)
10. a receptive context for change (e.g. what influence have broader contextual factors and mechanisms had on the Program and how receptive has the local context been to CSRP (Chief Executive support etc?).)

Our observations and findings on these KSFs at this early stage of the evaluation are discussed below.

7.1 The Program change model

As the program develops, the CSRP is becoming increasingly entangled with other activities within the health system. Within NSW Health, the CSRP Program Office is within the Health Services Performance Improvement Branch (with the oversight of the evaluation now being the responsibility of the Demand, Performance and Performance Evaluation Branch). While the Program Office is separately staffed, there is considerable overlap between what the CSRP Program Office is doing and what the rest of the Branch is doing:

*It is very difficult to distinguish what is clinical redesign and what is other stuff – what is clinical redesign and what is performance management, what is clinical redesign and what are the increase in beds so what we’ve decided to do ourselves is we all support each other. (D)*
Within area health services, the CRUs are (to varying degrees) being approached by staff for guidance and assistance with projects outside the strict parameters of CSRP. This is a healthy development but it blurs the boundaries of what is CSRP and what is not CSRP. In two area health services, Sydney West and Northern Sydney Central Coast, the CRU is part of a larger change management program – Care First and the Sustainable Excellence Program respectively.

At the project level, solutions generated by a CSR project can be indistinguishable from other changes brought about by new policies from the Health Department or changes implemented as a result of the influence of, for example, the Surgical Services Taskforce or the Emergency Care Taskforce. This is perhaps best illustrated by the work on developing models of care. This is being done as part of CSRP at the program level and many hospitals are implementing, for example, the 3:2:1 model of care in their emergency departments but the solutions generated by CSRP projects only include a small number of examples of 3:2:1.

The net result is that CSRP as a change model essentially has two components:

- The core activity that is clearly part of CSRP (a piece of work at the program level or a particular project).
- Related activities that have similar objectives to CSRP, particularly around improving performance, and that interact with the core activities in myriad ways.

The question this raises is whether this is a positive or negative feature of the model (the former because it promotes integration and whole systems thinking, the latter because it leads to a lack focus and confusion at the area and hospital level) and whether CSRP would benefit from having a stronger and more distinct ‘brand identity’.

In some parts of the health system this merging with the ‘day-to-day’ business of other components of the health system includes consideration of developing the capacity to support these changes:

> We have skills transfer plans in place, we’ve got development programs in place, we’ve got a partnership now with our workforce development unit which will hopefully go beyond just the remainder of the funded projects. The idea is that we are increasing the capabilities of the organisation but also the capabilities of it’s personnel as well … and the Chief Executive would like to see it become business as usual. (A)

High-level stakeholder interviews conducted by Value Enhancement Management (VEM)\(^8\) identified that there was no need to broadcast the CSRP strategy across the health system; rather, the imperative was to get on with delivering the program. Given the plethora of other attempts to achieve system improvement in the past, this was a reasonable conclusion at the time. However, the more recent VEM Management Participation Study concluded that ‘sustainability was undermined by a lack of understanding of the real CSRP strategy at the broader management level.’\(^9\)

### 7.1.1 Key elements of the CSRP methodology

The key elements of the CSRP methodology (at a project level) are:

- A formal project management approach with high levels of structure delivered by the expertise and resources of the external partners.

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- Strong performance accountability with the use of executive sponsors, short time frames and daily review.
- A focus on process.
- A focus on performance, with much less emphasis on quality and safety.
- An ‘improvement by objectives’ approach.
- Priorities identified with a ‘top down’ approach but with an effort to engage key stakeholders and develop ‘bottom up’ solutions.
- The structuring of new groups to address organisation wide issues – modelling new organisational forms and structures.
- The use of data (lots of it in a timely manner, linked to the project KPIs).
- Working in teams.
- Using the idea of a patient journey to think beyond the confines of individual departments or services.
- Getting a patient perspective. Although consumer input has been patchy when it is used it seems to have quite an impact. Even without direct consumer input the use of the terms ‘patient journey’ and ‘patient experiences’ are starting to become part of the lexicon of health care (at least for those with some involvement in CSRP projects) and assist in turning dry data into something that staff can relate to in terms of what they are trying to achieve for their patients.
- Strict adherence to tight deadlines, certainly in the initial stages of a project.

Based on the interviews we have conducted to date, the particular techniques used by external partners are of lesser importance. This issue will be explored further in years 2 and 3 of our evaluation.

7.2 Role of the Centre and program governance

7.2.1 Role of the Centre

The CSRP business case identifies the role of the Central Program Office as follows:

- Management of a large, complex and prolonged change management program.
- Identification of best practice models for various patient groups.
- Design of methodologies for knowledge management, including ensuring that locally based teams have access to each other’s ideas and insights.
- Providing assistance to local Area based teams on an ‘as-needs’ basis.
- Rigorous monitoring of progress to milestones and performance to KPI's.
- Regular reports to the Director General, Minister and Treasury.
- Develop methodology and framework to install and sustain change management initiatives at each Area.
- Central monitoring of the efficacy of management development and skills transfer at Area level.

In practice the role of the Centre has two main components:

- The work of the CSRP Program Office.
The drive to improve performance that is coming from the Health Department in general and the Health Services Performance Improvement Branch in particular.

The role of the Central Program Office is constantly evolving in line with the general thrust of what was set out in the business case. The day-to-day working relationship with the Program Office is generally viewed by those working 'out in the field' in favourable terms:

I don't know if they've changed or we've just got to know them better. I feel a lot more comfortable talking to them now than I did when I first started because I didn't know them, so I don't know whether they've changed or whether it's just the relationship's grown. (A)

I've run other projects and I've dealt with other divisions or directorates within the Department of Health and can I say that these guys are far more accessible than anything I've ever come up against from the Department. (A)

I think they're learning at the same rate as we are, not that that's a bad thing, we're all on a journey with this. (A)

With regard to the broader issue of the drive to improve performance, of which CSRP is a part, there is a somewhat different story:

To a certain degree I think the Department tend to monitor us a bit too much... I can understand to a certain degree why... they need to be assured that what we're doing is meeting their objective but I just think that, right down to the work order, it seems to be a battle. (A)

At times they have used clinical redesign to assist the micro-management of facilities and health services. (A)

As time has gone by, their almost obsessive interest in how it's going and really looking at the hard figures which are not really good measure of success, they are only measures of efficiency, they're not really figures that tell you much about the outcome for a patient. They're looking at these, they're not taking the time or seem to lack an understanding that when you're implementing really quite large change processes which are certainly what we have been doing that it does actually take time and that you need to look at the trends of the data over time not the actual day-to-day or week-to-week data, and the reactions that we get without there being consideration of the trends is a bit of a problem for us. (A)

They run the health service now, there's no boards, they run the show ... we don't have a boss at the top of our health service anymore they're in North Sydney ... it's another three layers of bosses to tell you what to do. (A)

Some people perceived this as being symptomatic of CSRP having become entrapped in 'immature politics':

The only reason it continued to work was the fact that there were strong incentives at every level to make it work; for everyone, the cost of failing was too great; everyone needed it to work. The downside has been the depressing politics surrounding the program which has seen every level above the next shouting and screaming and beating people up. (EP)

As the above comments highlight, the issue of who 'owns' CSRP was at the core of many comments made about program governance. The CSRP is aiming to achieve long-term sustainable change, with local ownership perceived both by the Health Department and by the
areas to be a critical success factor. At the same time, many key stakeholders at this point see the Program as being centrally driven and controlled and part of a broader move by the Department to micro-manage the system – as one respondent put it ‘of CSRP being done to hospitals’.

These views reflect an important tension. On the one hand, the CSRP is aiming to be a proactive way of achieving transformational change in the health system. On the other, pressure from the Health Department to achieve the KPIs is perceived as being reactive.

An important flow-on effect is in relation to the buy-in of key stakeholders, especially clinicians. One of the critical successful factors for the Program is the active engagement of clinicians. The likelihood of achieving this is determined, at least in part, on how clinicians see the aim of the Program. This engagement is more difficult if the Program is perceived as a centralised, reactive approach to improving health system performance.

The pressure is not on us to be reactive … the pressure is on the general managers of where we’re working to be reactive. (A)

They’re trying to make things that we’ve put in place from a proactive stance, they’re trying to make them work from a reactive point of view and it doesn’t necessarily work and some things have gone a bit out of kilter … I am concerned about the effects it will have on the culture of the organisation, one of the key things with clinical redesign is about empowering people on the ground to identify and resolve the issues whereas the reactive management which is from ‘on high’, instructing ‘you will improve’ and ‘do this differently’ very much cuts across the quality improvement cultural development so there is a real tension between a quality improvement culture and a performance culture in some people’s eyes. (A)

Given the improvement in the KPIs that have been achieved to date, the opportunity now exists in the remaining two years of the Program to deal with this tension and focus efforts on achieving the sustainable transformational change on which the Program is premised. This needs to involve greater local ownership in developing proactive solutions, and arguably one way this may be achieved is by thinking further along the lines of ‘centralised strategy, decentralised operations’. This is one suggested way of managing this important polarity that retains strong coordination and direction at the centre whilst allowing for flexibility and customisation to local contexts and strong local ‘ownership’.

7.2.2 Program variations

The CSRP is defined by the original business case to Treasury but, not surprisingly, there have been variations to what was set out in that document. These have nevertheless remained faithful to the intent of improving performance in the short term and improving the culture of the health system in the long term.

The allocation of money to rural area health services for CSRP is less on a pro rata basis than the allocation of funds to metropolitan areas, but this is consistent with the focus on KPIs. While recognising that they do not have the same access issues as their metropolitan colleagues, the rural area health services do, however, feel like ‘second class cousins’:

Clinical redesign – this has been an afterthought for rural areas … it is very much set up to address the access issues in major metropolitan areas. (A)

As one interviewee pointed out, their issue is not ready access to services that are available; it is having access to a service, particularly given the tyrannies of distance faced by rural health services. It was also suggested that setting the same targets for performance on the access KPIs for all hospitals may not be appropriate, and that some consideration should be given to setting the targets higher for rural hospitals than metropolitan hospitals.
Greater Southern AHS has a series of projects that do not fit neatly with the business case KPIs. Rather, they are focused on improving performance more generally, particularly meeting budget. Their three projects have a focus on improving communications, governance structures and management skills and these have the potential to establish the basic building blocks for future projects. The impact of these projects will be important to monitor. The management skills project is referred to as the lead project. As yet, this has not been done elsewhere in the State as part of CSRP.

7.2.3 Program governance

Within the Health Department the CSRP Program Office is part of the Health Services Performance Improvement Branch. The program management arrangements for CSRP have changed over the course of the Program; now there is a weekly CSRP/Sustainable Access meeting to link the two programs.

At the area level, the CSRP Program Review raised the concern that few area health services ‘had demonstrated strong alignment and integration with Area strategic directions, programs and structures.’ Our early observation is that there is still some variability in this regard, in part due to varying perspectives of what CSRP is and, in part, due to the learning process inherent in such a program. Some consider it to be a time limited program that, while important, is still essentially just a very large project (or rather, series of projects). Others see it as fitting well with the strategic direction of their organisation and have positioned it accordingly. An example is the way that Sydney West has positioned the program within their Care First Program. Likewise, Northern Sydney Central Coast AHS sees clinical redesign as part of their Sustainable Excellence Program.

Some area health services have a strong alignment of their CRU with the performance section of their Area administration; others have more of an alignment with components such as planning and service improvement. None of the area health services have quite the same emphasis now as existed in the original Maggie program where Maggie was clearly seen as the central reform strategy for the (then) Hunter Area Health Service.

7.2.4 Identifiable program rather than a series of projects

There is a general view within CRUs that CSRP is very much a program rather than just a series of projects, or at least that is the direction it is heading:

I would like to see clinical redesign as something that lives on. I would like to see it as a way of doing business, a way of looking at problems, a way of looking at changing the system to deliver better services. (A)

We actually have quite a strong program focus. We’ve developed a view of how the unit will change over time and the role of the unit and the sorts of projects that will be running in the future and we see it as moving forward over time and changing over time. (A)

We aren’t a program yet but I think we will be. What we’ve tried to do is make sure that people use us not just for projects but use us for our expertise. (A)

One exception is the Hunter New England AHS where the initial strong identity and focus of the Maggie Program has dissipated somewhat.

7.3 A receptive context for change

The research literature shows that a good deal of the performance variability between organisations participating in a common improvement program can be attributed to the extent to
which there exists a ‘receptive local context for change’, a phrase that covers structure, culture, politics, and leadership.

7.3.1 Amalgamation of area health services

The amalgamation of area health services in NSW has been a double-edged sword, creating instability in many instances and paralysing decision-making in others. At the same time, some in the CRUs see the amalgamations as creating opportunities:

If anything it's inhibiting change because so many people are acting and they don't feel that they have the authority. I've heard that so many times. I think it's created huge instability, programs that were achieving really good things got stymied, people don't feel they have the mandate or the authority because they're just acting, I think it's been the worst timing, I think it's been a detractor from clinical redesign. (D)

I think it's been hard as far as getting people convinced that this is a good thing, with the amalgamation people are very threatened, there's been a lot of people in acting positions … but in ways it's been a good time too because it's actually enabled some people to actually do things that have made a difference. (A)

The fact that we have gone through, and we are going through, an area-wide restructure has actually opened the door and they realise that it's not only area-wide but it's actually how we deliver our care. (A)

It was as good a time as any - there are pros and cons. (A)

In those instances where the management structure is still not fully in place, concerns were expressed about the implications this would have for project implementation. An example of this is a patient flow project that relies on a layer of senior nurses who are yet to be appointed.

In general, clinical redesign projects were seen as having a positive influence on the amalgamation, presenting opportunities to engender a sense of direction and common purpose:

It's certainly I think assisted in the process of amalgamation. They started getting along quite well after a while whereas at first it was fairly hostile. (P)

It has been an incredible tool for doing that and establishing trust and getting people to understand each other and work together, to move towards one culture … and my own personal view is that without that vehicle this amalgamation would be on really, really, rocky territory. (A)

I actually think the program has helped bring the area together. (A)

There was concern that there was going to be a change to only one way of thinking so I think that it helped that we went no, no, we need to look at how best to do it across the whole area health service and it's not about one facility saying 'do it our way'. (P)

I think it's been a positive thing overall … it's helped that cultural shift where people have moved on and now see each other as part of their area, they are now colleagues rather than 'down the road' … it has had a lot of positive effects. (A)

7.3.2 The local context at the unit/department level

Many commented on the importance of having a receptive environment for change at the local level. Staff may not be clear about what they want to change, just that they want something better than they have at present, and see a CSRP project as a way to achieve that:
We were quite desperate for some change, we certainly needed it and we were keen for some changes, so yes, I think that is a big part... people were keen for something better. (P)

I think the reason it will be sustainable is because I think people recognise that things need to change and if we don't do something we're going to just keep going down the gurgler. (P)

The biggest thing was, when we went out there, the way we promoted ourselves was 'whatever comes out of this project there will be change this time'. We have had a lot of other projects go through and there has only been a little change or no change and it hasn't had much of an impact on the organisation as a whole. (P)

There were little pockets of resistance but I was pleasantly surprised in the sense that there has been so much change .... but they were really very willing to be a part of it for the most part across the whole area health service ... they're asking for help, they are showing you their problems and they are saying 'please, if you can see a way around this, we need someone to look at it and do it. (P)

Once the change process has commenced the impact on staff manifests itself in various ways and, in general, this has been very positive:

CSRP is so important for the people involved with it ... some people are going on to bigger and better things ... their careers have evolved because of their involvement in CSRP. From a people perspective the outcomes have been enormous. (EP)

[The project made staff realise] that there are actually solutions from within the unit that may not be a final solution but they can make a change to how the unit works to improve access for patients and improve the conditions that staff work under. (P)

From clinician level there is the opportunity to be involved in change and in fact to have some of the ideas around what might result in change rather than it having to come from the upper levels I think has also been something useful. (P)

I see things differently and I think more about what we're doing and I notice things that go on and think 'why are we doing that' – I question it a bit more than I used to and realise that we are actually empowered to make changes and do things and look at things differently. (P)

I think because everyone is always so protective and defensive, because you're always being asked to justify why you're not performing and always having to explain yourself and people suddenly went 'well, maybe we can change things and make a difference'. (A)

I think this is good stuff, I mean the principles are good stuff ... it actually gives people a sense that 'we've taken control, what's happening' ... given them some power. (A)

The first few years I was here it was just 'plod along', now it's just exploding with change ... we're always looking to improve something. (P)

I learnt how to separate myself from my own environment and stop just seeing this little wee picture and not just be defensive. I think we often get defensive in health about what we do or don't do and I learnt not to be so defensive and be more open about it and just look at it with fresh eyes and see what could be different and what changes could be made. (P)
When we did clinical redesign suddenly people were forced to stand back and say ‘hang on, maybe this is our fault, let’s look at ourselves’ and people started doing that. (P)

People have responded fantastically … [CSRP has] given them the opportunity to grow in ways that they wouldn’t have otherwise. The people are very smart and knowledgeable in their own areas of expertise, now they have the opportunity to add to that. (EP)

These positive responses were mirrored in responses to the Year 1 Survey:

The major change to the culture has been in attitude, acceptance of the need to change practices.

The culture has started to take on a ‘can do’ attitude to change, especially at the coal face i.e. frontline managers and staff.

The project has changed the awareness of staff regarding improvements needed within their own services / departments and that their practices and processes may have impacts (negative and positive) on other services and departments. Thus it has increased the awareness for need for change and the willingness to change.

This positive impact can be found even when there is a realisation that all problems have not been solved just because there has been a CSRP project:

I would say that the mental health project is one of our successes. In spite of the fact that the data you look at for access block for mental health patients is still horrendous, the change of mind set right across the area is phenomenal. (A)

I think the whole place (ED) flows a lot better … I think the staff are a lot happier … you are having bad days still but it’s a bit more controlled bad days – they actually know where the problem lies, you can see where the problem lies. (P)

7.3.3 Breaking down silos

One of the intents of the CSRP was to ‘break down the silos’ between traditional professional groups in health. There is some evidence that this is happening at the level of individuals and groups of individuals. In addition to working in teams, the catalyst is often the focus on patients or the use of data:

(The discharge planning meetings have) given all staff a better understanding of, number one the patients, and an understanding of each other's roles and the timing of things and the pressures of other health professionals … it's given staff a broader understanding and given them a common goal in making this work. (P)

Suddenly the units, although ICU is still a problem, but ED would understand the wards problems, wards starting understanding ED … the communication was much better. (P)

You can see the bigger picture, you’re not just insular in your little area. You can see everything and you can see everyone’s value and how important it is to have shared business across the whole organisation and not people working against each other, we’re all working as a team, you know everyone depends on each other and each department relies on each other so heavily. (P)

In terms of mental health it's removed some of the silo effect, so we now have a lot more interaction between the community teams and the inpatient unit, and also our
emergency mental health staff and the inpatient unit – it’s certainly removed some of those artificial barriers that existed. (P)

They got quite defensive when realistic data was put out … but after the evidence was put forward and looked at and then analysed and put into perspective they could see that yes, we can do it better, so then they started working together … you can really see it changing, it’s quite amazing to watch it change. (P)

I think getting different disciplines to understand how the other disciplines work … understanding how each of the disciplines work and fit together and how they impact on each other, that’s been huge. (A)

The main way in which this has manifested itself is a shared sense of responsibility between those involved in patient care, particularly around patient flow issues e.g. between emergency departments and the rest of the hospital for access block. This was reflected not only during interviews for this evaluation but in some of the responses to the Year 1 Survey.

### 7.4 Stakeholder engagement, participation and commitment

#### 7.4.1 Consumer involvement

The CSRP Program Review in February 2006 noted many frustrating experiences regarding consumer involvement and suggested that this may be due to a lack of confidence and skills in working with consumers rather than a lack of commitment to the concept. Consumer involvement was seen as an area requiring more support and attention.

Subsequent to this a review of consumer involvement was undertaken, resulting in the CSRP Consumer Involvement Report, completed in June 2006. This included interviews with 28 staff from Clinical Redesign Units (CRUs) and area health service community participation units. The report did not seek to evaluate the management of consumer involvement by CRUs but be forward looking. The Report includes three key findings:

- There is significant potential to lever the knowledge, resources and proven success in consumer involvement that is currently held within CRUs and among community participation staff within area health services.
- Highly specific training, coaching and resources will equip CRU staff to confidently and meaningfully involve consumers throughout their redesign projects.
- There is a need to develop a stronger imperative for external partners and CRU staff to involve consumers in redesign programs.

This is a good example of the need to embed what CSRP is doing with other components of health services such as quality improvement departments, education units and other performance units.

When the Year 1 Survey was distributed to projects we were unaware that the work resulting in the CSRP Consumer Involvement Report had been undertaken. We thus included three overlapping questions in the Survey:

- To what extent did consumers participate in the project?
- To what extent were consumers able to influence the project?
- If consumers participated please explain who was involved and how they were involved.

The results of the first two questions are presented in Figure 64. Responses to the third question merely duplicate what was found in the CSRP Consumer Involvement Report regarding the wide
variety of approaches taken to involving consumers, in a rather patchy way across the CSRP projects.

**Figure 64 Consumers participation and influence on CSRP projects**

One third of projects responding to the survey had no consumer participation in their projects. The two mental health projects responding both identified that participation of consumers had been significant and that their influence on the projects had also been significant. Given the long history of formal consumer involvement in mental health services, this is no accident. It suggests that perhaps the strategy should be one of increasing consumer involvement in health services in general, with CSRP projects merely ‘tapping into’ that involvement, rather than expecting CRUs to develop significant skills in engaging consumers.

At the present time there are two main strategies for incorporating information from patients into the CSRP:

- The development of tools to capture patient and carer experience as part of the methodology of CSRP projects. The aim is that this will become a standard part of the CSRP project methodology and provide a mechanism to understand the main issues identified by patients and carers and address them in each project. This will involve direct engagement of patients and carers before and after each project.
- The work of Value Enhancement Management on the patient journey. We have commented elsewhere in this report on that work.

In addition, the Health Department has recently gone to tender for work to undertake a patient and carer satisfaction survey which will provide the data for a satisfaction KPI for each area health service. There is also the work with ad hoc patient satisfaction surveys that typically occurs in the day-to-day running of health services.

As has been reported elsewhere in this report there is a lot of opportunity to increase patient and carer engagement in CSRP projects. This would be an appropriate time to ‘take stock’ of the various approaches and make some decisions about the best way to proceed on this issue.
7.4.2 Clinician engagement

The Year 1 Survey asked each project about the involvement of allied health, medical and nursing staff. The results are summarised in Figure 65.

**Figure 65 Degree of clinician involvement in CSRP projects**

Clinician involvement throughout all stages of the project is seen as essential. In general, involvement of nursing staff, either in project management or project implementation, is extensive and far greater than other professional groups. Many nurses are either working in CRUs, have been seconded to lead projects or are in positions with responsibility for implementation e.g. patient flow managers, discharge planners. The degree of involvement of allied health and medical staff is more variable. Salaried medical staff have more involvement than visiting medical officers.

The survey yielded a range of responses regarding clinician involvement, mostly concerning doctors:

*There was good buy-in from surgeons, anaesthetists and multidisciplinary staff across the Area.*

*Some resistance has been encountered simply because of change, and other resistance has been associated with insufficient communication/education strategies.*

*For surgery (particularly in theatre areas) allied health are rarely involved in the issues raised, therefore representation from that group was not required. For specific issues, allied health and other staff were involved as appropriate.*

*It was difficult to get VMO involvement due to their other commitments.*

*The project team experienced difficulty engaging VMOs as the general consensus was this project would not lead to the implementation of recommendations.*

*There was a mixed response by ED clinicians as to how involved and supportive they were of the project. Some immediately grasped the concepts tried and implemented and others were cynical and would not comply with changes particularly during busy times. It was difficult to have a multidisciplinary approach to the data entry required in the diagnostic tool that captured reasons for delay.*
Two staff specialists and one VMO are members of the steering committee and actively promote the program’s successes.

The majority of wards have been supportive. Some areas have been more resistant particularly where multidisciplinary input is not well established.

How to involve frontline staff is inevitably a learning process given the very different demands of the CSRP methodology to previous health reform initiatives. The concentrated, time limited, effort required by the initial diagnosis and solution design phases places great strain on staff to stay involved. Implementation brings its own challenges.

In addition to the comments above regarding medical staff involvement the interviews also yielded a diverse range of comments:

The medical culture has been difficult to the point where they were boycotting … they really go out of their way to make sure it doesn't work … there were some trying times. (P)

Some people were very keen to be involved … some others came to meetings, said their piece and left and really didn’t want to get too involved. The majority didn't take that responsibility (to become involved and actually do something) very well … They came out of those meetings expecting someone else to do the work that they were talking about. (P)

We are getting cooperation but it takes time. It's a huge cultural change. Some of the feedback you get from the medical fraternity, some have said ‘it's really positive what you guys have done’. (P)

With patient flow it has been extremely difficult to get your VMOs on board and that will probably never change but ED physicians were heaps more engaged this time, they were really focused … they were fantastic. (P)

There is some cause for optimism, in one area health service at least, that clinician engagement is improving:

In going around the area this year setting up a new set of projects there seems to be a real difference compared with last year regarding the willingness to be involved – we are getting far more understanding now that this is how it should be … there’s a lot of buy-in for this and it’s senior clinician buy-in. (A)

Given the CSRP aims of engaging clinicians and ‘breaking down silos’ one of the tests for this approach is engagement of allied health staff, primarily because this group covers such a diverse group of health professionals. This presents a very practical challenge in terms of who to involve and how.

Engagement of allied health staff appears to be quite variable, ranging from engagement in all projects in some area health services to engagement only in some projects in other area health services. The Sydney South West AHS was identified in very positive terms in this regard with a real effort to engage allied health staff. Not all area health services include a representative from allied health in the overarching governance committee for CSRP, however named.

With the move in the second year of CSRP to a range of projects with a strong focus on aged care and community care, involvement of allied health will be even more important than in the first year of the CSRP and attention to how this can best be done can only benefit the program.
7.5  Effective local improvement teams

The Year 1 Survey asked for a description of ways in which teamwork was improved as a result of the project. This could either be the teamwork of those involved in the project or the teamwork of those implementing the changes resulting from the project. By far the most important strategy was regular meetings across disciplines or departments (Table 13). These meetings might be between two departments (e.g. operating theatres and intensive care), between many disciplines around discharge planning, or between emergency departments and the rest of the hospital.

Table 13  Ways of improving teamwork

<table>
<thead>
<tr>
<th>How teamwork was improved</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular meetings across departments or disciplines</td>
<td>12</td>
</tr>
<tr>
<td>Project management strategies</td>
<td>7</td>
</tr>
<tr>
<td>Common goals</td>
<td>4</td>
</tr>
<tr>
<td>Improved networking and communication</td>
<td>4</td>
</tr>
<tr>
<td>Implementation of the ‘just fix it’s’</td>
<td>1</td>
</tr>
<tr>
<td>Area projects – representation from each site</td>
<td>1</td>
</tr>
<tr>
<td>Work to standardise processes and procedures</td>
<td>1</td>
</tr>
<tr>
<td>Not answered</td>
<td>2</td>
</tr>
</tbody>
</table>

The project management strategies referred to in Table 13 include the use of workshops involving particular departments, the use of project and team management tools, incorporating different skills within the project team and involvement of key individuals.

7.6  Leadership

There was a consensus amongst those interviewed regarding the critical importance of leadership, although its importance seems to vary by type of project. For projects in defined clinical areas such as emergency medicine and mental health effective clinical leadership, particularly from the medical director, can be crucial:

The ED director is a real champion for change. They work really well, the nursing manager and the ED director work fantastically together, they’re really enthusiastic. Some of the senior physicians down in ED are really change-focused. (P)

We had an area director and he was very much on-side with the change which pretty well guaranteed that those down the line were going to be (with a mental health project). (P)

Surgical projects can be led by people such as surgery managers and facility managers, with support from surgeons. Patient flow projects are more problematic due to the large number of people involved – it usually falls to nurse managers and facility managers to provide the necessary leadership. The leadership has to come from somewhere:

If you don't have positive drive up there nothing gets done here… you can do as much as you want down this level but it doesn’t go anywhere… we’ve got great people up top who are positive-minded who want the best care for the patient and they want the best out of the organisation. (P)

It all depends on the leadership you’ve got – the executive leadership at an area level, the executive leadership at a facility level and the leadership within the department or services that this is actually going on with. (D)
When the leadership is present at the beginning of a project but cannot be sustained, it does not take long for the project to flag, as this comment about a patient flow project demonstrates:

*There has to be a visible, demonstrated, commitment by the Executive and there has to be visible leadership and if that doesn’t continue to drive things along I think anything will fall over … When you call upon your executive to start challenging some of these really hard behaviours and cultural issues, or resource issues, whatever it is, there must be a response, and if they don’t respond, or they do take action and they don’t actually feed back to the staff, it goes ‘pear shaped’. (P)*

There is recognition of the importance of including in project teams people who will be change agents. These people need to be well placed within the organisation and have the personal attributes to effect change.

From the perspective of the external partners different leadership styles are seen as having a significant impact on the outcome of CSRP projects. It is much harder for CSRP where the leadership agenda is not aligned with CSRP. There is a view that the quality and depth of leadership capability should also be addressed as part of CSRP, including education/training on how to raise awareness and create a shared vision, and how to implement a performance management framework.

The CSRP Program Review noted that there are few instances of clear strategies to develop the leadership skills of senior managers and expressed concern that this key element of sustainability has not received more attention.

This is expected to change in Year 2 and beyond of the program, with significant planning currently underway in NSW Health to develop and roll-out a major middle management training program. There is a clear understanding that a multi-level approach is required, for example, skills training in performance improvement for senior staff and change management skills for clinicians. This bodes well for the latter stages of the program.

### 7.7 Effective local implementation / change management skills / processes

The area health services have taken quite different approaches with regard to the CRUs. One approach is to give as many people as possible the opportunity to work in the unit for short periods of time and then send them back to their substantive positions. This has advantages in terms of spreading knowledge and skills but staff often do not have the time once they get back to implement what they have learnt. It is also an expensive strategy because of all the training required as new recruits come into the unit. An alternative approach is to build a core team, who become the internal consulting team, who work on successive projects and can continue involvement with projects after the external partners have gone.

### 7.8 Performance improvements identified by projects

The Year 1 Survey requested examples of improvements to performance, quality and safety. The improvements in performance identified by projects are summarised in Table 14.

<table>
<thead>
<tr>
<th>Improvement in performance</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved access for emergency admissions</td>
<td>6</td>
</tr>
<tr>
<td>Improved links between services e.g. referrals</td>
<td>4</td>
</tr>
<tr>
<td>Improved access to surgery</td>
<td>3</td>
</tr>
<tr>
<td>Increased use of Expected Date of Discharge</td>
<td>3</td>
</tr>
<tr>
<td>Reduced lengths of stay</td>
<td>3</td>
</tr>
</tbody>
</table>
Improvement in performance

<table>
<thead>
<tr>
<th>Improvement</th>
<th>No. of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved triage times</td>
<td>2</td>
</tr>
<tr>
<td>Prevention of access block by using a bed capacity escalation plan</td>
<td>1</td>
</tr>
<tr>
<td>Reduced frequency of escalation of bed capacity issues</td>
<td>1</td>
</tr>
<tr>
<td>Reduced time spent by mental health admissions in ED</td>
<td>1</td>
</tr>
<tr>
<td>Improve off-stretcher times</td>
<td>1</td>
</tr>
<tr>
<td>Reduced cost of nurse specials in ED for mental health clients</td>
<td>1</td>
</tr>
<tr>
<td>Nurse activated discharges</td>
<td>1</td>
</tr>
<tr>
<td>Improvement in patient processing into the operating theatres</td>
<td>1</td>
</tr>
<tr>
<td>Staff achieving performance targets (Ambulance Service)</td>
<td>1</td>
</tr>
<tr>
<td>Improved compliance with call taking processes (Ambulance Service)</td>
<td>1</td>
</tr>
<tr>
<td>Not answered</td>
<td>4</td>
</tr>
</tbody>
</table>

The survey also sought a response to the question ‘to what extent have performance, quality and safety been improved as a result of the project?’ The responses are summarised in Figure 66.

*Figure 66 Extent of improvement in performance, quality and safety*

Interestingly there was a considerable level of agreement about the extent to which performance and quality had been improved, with moderate or significant improvement in most projects able to respond other than ‘don’t know’. For both quality and safety many projects did not know whether there had been any improvements. In part, this would be due to the absence of a systematic approach to project level evaluation but it also reflects the reduced emphasis on quality and safety in the CSRP, compared to performance.
8 Quality

The Year 1 Survey requested examples of improvements to performance, quality and safety. The following improvements to quality were identified:

- Increase in the number of patients with a discharge plan and/or care plan (two projects)
- Increase in number of patients with discharge risk screening (one project)
- Development of management plans for frequent attenders to ED (one project)
- Follow up of ‘did not waits’ in ED (one project)
- Reduction in the number of ‘did not waits’ (two projects)
- More active and regular review of long-stay patients in inpatient unit (one project)
- Increased staff satisfaction (one project)
- Medical handovers in ED changed to ensure that there was someone available at all times to continue reviewing patients (one project)
- Staffing in pathology changed to ensure high priorities attended (one project)
- Increase in post-surgery review of joint replacements (one project)

Improvements do not necessarily fit neatly into the categories of performance, quality and safety and these examples are no exception. The fact that the number of patients with a discharge plan or a discharge risk screening has increased may not mean an improvement in outcome but it is reasonable to see these as process indicators of quality.

8.1 Patient experiences / patient perceptions

The major program-level work to date on patient experiences is the *Patient Journey Study* by Value Enhancement Management (VEM), completed in August 2006. This was commissioned by NSW Health to inform the ongoing design of the program and, for this purpose, it provides useful information.

The patient experiences reported in the study are based on detailed interviews with 74 patients in 10 hospitals. Five hospitals in the survey were selected by VEM and NSW Health on the basis that they would reflect the experiences in hospitals prior to the implementation of CSRP and five on the basis that they would reflect experiences in hospitals post CSRP. The hospitals are grouped and reported together as ‘Pre CSRP’ and ‘Post CSRP’ hospitals in the VEM report.

In the absence of a true baseline measure of patient experiences, this was a sensible aim. However, differences between the hospitals in the two cohorts make drawing conclusions about them difficult. This is primarily due to the sample of hospitals in each group:

- Patients from two hospitals in the ‘Post CSRP’ were elective admission patients. Patients from only one hospital in the ‘Pre CSRP’ cohort were admitted for elective surgery
- Carers in the ‘Pre CSRP’ sample are carers of acute admissions to a mental health unit, carers in the ‘Post CSRP’ sample are parents of children.
- One ‘Post CSRP’ site had not implemented any solutions for its CSRP project at the time patient interviews were conducted while at least one of the hospitals in the ‘Pre CSRP’ has implemented CSRP solutions.
- A different mix of clinical streams (surgery, medicine, mental health and ED) in the pre and post sites.
Each of these factors can be expected to result in differences between the two cohorts and our preliminary analysis confirmed this to be the case. For example, surgical patients, overall, rated their experience more highly than ED patients. This is not surprising. But the implication is that differences between the two cohorts cannot be accurately attributed to the CSRP. There are other possible explanations. Lest this commentary be considered unduly technical, it needs to be recognised that with sample sizes of 40 and 34 in the pre and post groups, just four people can create a 10% variation in responses.

Another observation is that some of the questions (parking, the overall environment, knowing about any expenses, availability of newspapers and magazines, availability of televisions) are about factors that are not being directly altered by CSRP projects. The VEM survey is thus tapping into issues that are much broader than the CSRP. That said, there are many questions in the survey that are directly related to what CSRP projects are trying to achieve (e.g. waiting times) and some questions may be indirectly linked to CSRP projects (information about what will happen next). A review of the questions to establish a more direct link with the aims of CSRP projects would make it easier to attribute any changes in future years to the CSRP.

9 Safety

While improved safety is one of the aims of the program, little attention has been given to safety to this point. In fact, respondents to the Year 1 Survey were not able to identify any safety improvements.

In terms of safety I think it has been a criticism ... that we really haven't looked at safety issues and we really at no stage have looked at clinical issues within our projects. (A)

While it is not surprising that the focus in Year 1 has been largely on performance, it will be important for the program to move in the next stage in achieving a better balance between performance, safety and quality. From a patient perspective, services not only have to be safe, but must also be felt by patients to be safe.
10 Spread

The CSRP has a formal knowledge management strategy. In addition, both formal and informal strategies are being used to increase the spread of the program. Each of these is discussed in turn below.

10.1 Knowledge management

The term Knowledge Management (KM) is defined by the Australian KM Standard to cover the concepts of ‘spread’ and ‘knowledge sharing’. There are also various initiatives and programs, particularly those involving technology and databases, that are basically content or ‘information management’. KM is also strongly allied to change and risk management in the immediate term and almost always involves long term changes of culture that are difficult to produce and to predict.

From the resources and documentation available to us, and from interviews conducted, we found a divergence of views on what is understood by the terms knowledge management, knowledge sharing, spread and communities of practice. There is also a divergence on what should be done about it.

At State level there is advocacy for a forward-looking KM landscape under the banner ‘Building bridges to better patient care’. This is aligned with current KM thinking and practice as recommended in the Australian KM Standard. The vision reflects this and the approach integrates all four KM elements from the Standard, namely people, content, processes and technologies; adding a fifth element, leadership. The focus is on decision-making for business and health outcomes and supports the CSRP aim of integrating patient journeys through the health system. This is appropriate and commendable but poses challenges for determining separate KPIs for KM.

The adoption of the ‘Building bridges to better patient care’ approach points to the need to strike a balance between opposing forces which include:

- Formal/Top-down/State driven KM initiatives versus bottom-up/locally driven knowledge sharing.
- Planned and controlled programs versus emergence and innovation.
- Transformation versus continuous improvement.
- Data and information versus knowledge.
- Different emphases of people, process, content or technology driven programs.

The scope of KM initiatives is broad. They cover on the one hand the building of a knowledge portal to take advantages of technological solutions for information management. On the other hand there is the promotion of learning through knowledge sharing of lessons across locations and teams in communities of practice. The correct focus here is on the sharing of models of practice, successful in one area, for local adaptation and development under other conditions. This is quite different from traditional practice of transferring ‘canned’ solutions from one area to another or from the top down.

In contrast a completely different view of KM was observed elsewhere in the health system (in one area health service) where the old culture of information distribution and centrally organised training programs was observed. Although this has merit for quality control in a large bureaucratic organisation, it is quite at odds with the vision from NSW Health as there is no place for innovation or incentives for knowledge sharing. The same divergence of approaches can be seen at the Intensive Care Coordination and Monitoring Unit (ICCMU) which has developed an excellent website where official content is posted from the central unit. At the same time ICCMU runs ICU
connect where knowledge is shared and adopted in a much more informal person to person fashion. The need for a balance and integration of such KM activities could provide great benefits but will not be easy to achieve.

The NSW Health Knowledge Framework Project undertaken by PA Consulting is comprehensive and follows the ‘Building bridges to better patient care’ direction. It proposes a 90 day plan for steps to confirm the Framework based on the ARCHI system with a goal to ‘connect people to people and people to content in context’. While the report provides an excellent basis to take KM forward in the right direction, specific issues that should be considered are the shortness of the timeframe and the heavy reliance on development of ARCHI as the core for KM.

The Social Network Analysis (SNA) is well done and very informative, demonstrating the dominance of the central Health Services Performance Improvement Branch (HSPIB) within which the CSRP Program Office sits, the existence of silos, the existence of some strong horizontal knowledge networks, and the need for the (cultural) change indicated in Figure 67.

*Figure 67 A recommended change of knowledge flows from the Social Network Analysis*

The picture painted above highlights the complexity inherent in KM for the CSRP. Current understanding of Complex Theory says that it is impossible to predict the full ramification of planned activities in a complex environment where large numbers of things interact. This is depicted in the Australian KM Standard concept of an eco-system (see Figure 68). This flies in the face of an organisation’s need to determine what best to do, to set objectives and measure performance against these. The Standard presents ways to overcome this critical problem and NSW Health can only benefit from following this path. This analysis follows the Standard.
The ‘Building bridges to better patient care’ document shows a good understanding of the Map-Build-Operationalise phases of Australian KM Standard (see Figure 69). The important element of this model is that the phases are not meant to occur in a linear mode. The knowledge audit reported in January 2006 may need to be regularly updated through ongoing processes built into the KM program. While, from time to time, well planned KM programs need to be rolled out in the ‘Operationalise’ phase, at the same time ‘building’ activities must be continually promoted to explore and trial new possibilities and create ‘champions’ for innovation in all parts of the organisation.

Both the KM Project Delivery Plan, ‘Building bridges to better patient care’ and the Knowledge Framework Project are structured around the four KM elements of the people, process content or technology from the Standard as shown in Figure 70. A fifth element of leadership is added by NSW Health implying a responsibility for planning, driving, supporting and providing resources at State level. It should be recognised that leadership in KM terms involves bringing all people in the organisation along the journey, probably the biggest challenge of implementing KM in a large organisation.

Mapping, Building and Operationalising, are supported by enabling processes and technologies.
The emphasis on building bridges is in itself excellent as long as it is realised that these need to be both vertical and horizontal, as well as across traditional boundaries. Vertically, knowledge is found at all levels and can be categorised as:

- Global – published knowledge from anywhere – accessible in CIAP.
- National/State – leadership, policies, funding, planning, vision, objectives, politics.
- Area health service – closer to the coal-face but can initiate and support KM between institutions
- Hospital/Institutional – where the integrated patient journeys take place.
- Work units along the patient journey.
- Individual patients with families, different needs and backgrounds

Horizontally, knowledge can be shared by communities of practice and communities of interest across institutions and work units, supported by area health services and the Health Department. This is where innovative models can be generated and shared.

Implementation of the vision for knowledge management underpins the spread of knowledge that is central to the sustainability of the results achieved by the CSRP. We suggest that the Map-Build-Operationalise phases of the Australian KM Standard should continue and occur in parallel:

\[\text{Figure 70 The four elements of the Knowledge Management Standard}^{11}\]

- Mapping – continue the knowledge audits and social network analysis as programs are implemented to evaluate progress and identify new needs.

---

11 This continuum from the Australian KM Standard takes the four basic elements of People, Process Content or Technology and depicts the various states of knowledge management readiness spectrum for an organisation.
- Building: - explore and trial activities to see what works to engage people at different levels and build champions.
- Operationalise: - implement planned initiatives in a flexible way allowing for localisation and innovation.

With regard to the five elements of knowledge management we also suggest the following:

**Leadership**

The vision from the Health Department must be clear but people at all levels must be engaged.

**People**

There is an emphasis in the proposed Framework on creating, capturing, storing and accessing knowledge in ARCHI (much of which is really information) but little on:

- building day-to-day KM activities into job descriptions and workloads
- ways to encourage and reward knowledge workers and sharers
- giving people the incentives and skills to take shared knowledge on board, trusting in the advice and information give and having the authority to use it locally.

**Processes**

It is important to identify what can be done in the short, medium and long term in the context of current constraints and demands and to recognise the long time frame typically required for genuine culture change.

**Technology**

The proposed technologies, e.g. the Knowledge Portal CIAP and ARCHI, are mainly focused on data/information capture, organisation and access. There is little awareness yet of the potential of new conversation technologies for communication and interaction that are now starting to move from civil society into the corporate world.

**Content**

Develop the knowledge portal and component technologies but monitor use, useability and usefulness.

**10.2 Other strategies to increase the spread of the Program**

In addition to dissemination on the ARCHI website, a variety of formal strategies are in place to increase knowledge and uptake of the program and the various solutions developed. At the state level, these are currently targeting senior managers and clinicians. For example, there is a now a monthly meeting of metropolitan hospital general managers. Likewise, findings are often presented at meetings of state-wide clinical taskforces such as those that exist for ED and surgery.

There is also some evidence of direct communication across hospitals and areas, although this is patchy at this stage. Some of this has already led to the broader uptake of solutions whereby hospitals have implemented solutions originally developed as part of a CSRP in another hospital. Implementation of the Jonah information system is such an example.

Our Year 1 Survey asked projects four questions that relate to spread. The first asked them to list anyone who had contacted them about their project and the second asked them to identify any
occasions when they had told someone else about their project. Those who contacted the projects are mainly internal staff either working within the project or in other CSRP projects within the same area health service. Most of the communication has been internal, involving presentations to managers and clinicians and workshops to other CSRP projects. There has been some communication between CSRP projects across area health services. The communication strategies used have been via workshops and presentations followed by face to face meetings.

Those who were informed by the project are mainly staff working in the same area health service. Four projects have used the CSRP web site to disseminate information. There is more information sharing between CSRP projects within the same area health service and top-bottom communication with senior management than communication with other area health services, which is minimal, at least as identified by respondents to the survey.

One of the issues with more informal methods of communication and sharing information is capturing what is happening. From an external partner perspective that is starting to happen:

*The snowball is gaining momentum … the different sites are talking, the staff are aware, that mind shift, the culture shift, that focus is gaining momentum. (EP)*

Projects were also asked about the extent to which they agreed (on a five point scale from strongly agree to strongly disagree) that it is reasonable to expect that their outcomes could be replicated elsewhere. There was a consensus that the outcomes could be replicated elsewhere, with 7 projects responding that they strongly agreed and 11 projects that they agreed that their outcomes could be replicated.

Finally, each project was asked about the extent to which they agreed that projects such as theirs provide important lessons for others in how to do things better. Again, there was a consensus, with 10 projects responding that they strongly agreed and 8 projects that they agreed with the statement that their project did provide important lessons in how to do things better.
11 Sustainability

The CSRP Program Review found that ‘of those Areas which had considered it most had assumed that sustainability was equated to transfer of skills.’ Responses to the Year 1 Survey included a range of comments on the issue of sustainability, indicating that a somewhat broader view of sustainability is starting to emerge:

*Sustainability will require ongoing support, education and fine tuning in order to ensure that the new initiatives become a permanent part of practice. The change process is now becoming a permanent part of mental health planning and this too will help ensure changes become permanent.*

*Changes to practice to date have been reasonably well maintained. Clear governance structure, leadership involvement, and establishment of clinical redesign department have all had an impact on sustainability.*

*Sustainability requires a systematic approach re feedback around changes and improvements that have been made.*

*Yes, they can be sustained if there is ongoing education and reinforcement of the need to maintain change and the need to make change.*

*Visibility of the KPIs and a more global perspective helps but there still needs to be more successful projects to follow up on the last project and imbed the culture in the hospital that sustainable changes are possible.*

In general, respondents were positive about the prospects for sustainability.

To try and gain some quantification of the likely sustainability of the improvements made to date we chose to use a sustainability tool developed in the National Health Service in the UK. The tool was the outcome of a significant body of methodological research involving (amongst other things) a literature review, focus groups and testing with 250 NHS staff. The tool is designed to be used prospectively to assist project teams gain knowledge about sustainability and factor this knowledge into the development of their projects. The tool uses a scoring system and 10 factors, with each factor having four options for scoring. The factors are grouped in three categories (process, staff and organisation) and match well with 7 of the 9 key success factors underpinning our evaluation (Table 15).

<table>
<thead>
<tr>
<th>Key success factor</th>
<th>NHS Sustainability Model factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Program change model</td>
<td>Benefits beyond helping patients</td>
</tr>
<tr>
<td></td>
<td>Credibility of the benefits</td>
</tr>
<tr>
<td></td>
<td>Effectiveness of the system to monitor progress</td>
</tr>
<tr>
<td>Role of the Centre and program governance</td>
<td>Credibility of the benefits</td>
</tr>
<tr>
<td>Stakeholder engagement, participation and commitment</td>
<td>Staff involvement and training to sustain the process</td>
</tr>
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<td></td>
<td>Staff attitudes toward sustaining the change</td>
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<tr>
<td></td>
<td>Clinician leadership engagement</td>
</tr>
</tbody>
</table>

Table 15 Alignment of factors in the NHS Sustainability Model with the key success factors

The tool was completed by 15 CSRP. The following is a brief summary of the results.

The highest possible total score for process factors is 31.5. The average total score was 24.7, with scores ranging from 17.7 to 31.5. The highest possible total score for staff factors is 52.5. The average total score was 34.4, with scores ranging from 16.7 to 46.6. The highest possible total score for organisation factors is 16.9. The average total score was 9.7, with scores ranging from 3.5 to 13.2 (see Figure 71).

**Figure 71 NHS Sustainability Model – total scores for process, staff and organisation factors (15 CSRP projects)**

The highest possible total score for the NHS Sustainability Model is 101. According to the authors of the model, preliminary evidence suggests that a score of 55 or higher offers reasons for optimism that sustainability will be achieved. All but two of the projects scored higher than 55. The authors also suggest that a score of 45 or lower indicates a need to take some action to...
increase the likelihood that an improvement initiative will be sustained. Only one project (Project 15) fell below this mark.

Figure 72 NHS Sustainability Model – total score (15 CSRP projects)

![NHS Sustainability Model – total score (15 CSRP projects)](image)

Given the low number of completed tools (58%) caution needs to be taken in interpreting these results but the high number of projects scoring 45 or higher is encouraging.

As a counter balance to this generally positive view regarding sustainability from those working in the health system are these sobering thoughts from external partners:

* Sustainability comes from making changes that are measurable and controllable. The bit that is nerve racking is that the areas, the hospitals, the clinicians, are very fond of doing analysis, very fond of it … they know how to do it, it’s their stock in trade. They love to do the analysis, everyone loves to get involved … they love to find out what the problems are, and then you get this list of problems, and everybody goes ‘great, well lets fix them’ and then it all comes to a great grinding, screeching halt, it slows down to a crawl, nothing happens. And to create the sustainability you have to have a full on drive to make the change and then a full on way to manage the change to make sure it stays in place. If you don’t manage how the change is going it will just drift back. (EP)*

* The most frustrating part of this work is going back to a place where you, and the people at the facility, have worked so hard to implement something, to see only that a lack of focus has meant that certain things have, not necessarily fallen over, but are not working as they were. That has been quickly turned around by putting the focus back onto it. Take away message is that external partners, the project sponsor and the executive of the hospital, have a responsibility for leaving people accountable for certain things. That is the key to sustainability. (EP)*

One of the key issues with sustainability will occur in the second year of the Program as area health services take on an ambitious agenda of largely area-wide projects focusing on the aged and chronically ill. This will need to be done without taking the ‘eye off the ball’ for projects that have already been implemented.
12 Discussion and conclusions

We noted at the beginning that our evaluation has two elements:

- **Summative evaluation**, which seeks to ascertain whether and to what extent the Program, was implemented as intended and the desired/anticipated results achieved.
- **Formative evaluation** whereby the results of the evaluation inform the ongoing development and improvement of the Program.

In this section we draw conclusions about each element.

12.1 Summative conclusions

The CSRP is one of three key strategies adopted by NSW to transform the performance, quality and safety of the NSW health system. The other two strategies are:

- A significant increase in resources with the commissioning of an additional 1,811 beds between 2004 and 2006.
- Top down performance management, with a particular focus in the first phase on improved performance in emergency departments and in the management of elective surgery waiting lists.

The three strategies are intertwined and the CSRP cannot be considered in isolation. Between them, they can be credited with achieving significant performance improvements in the NSW public health system in the last two years. These changes are impressive, particularly the improvements in emergency admission performance (access block) and the virtual elimination of people waiting more than 12 months for elective surgery.

All three strategies have made a contribution, albeit to various degrees. Given that only a small number of CSRP projects have been implemented to date, and that the majority of these were the most recent six months, we consider any contribution by CSRP to be modest at this stage. This is not a criticism, merely a reflection on the timing of this first report.

The first CSRP project began in August 2005. By June 2006, some 35 separate projects had been initiated, although many of them were in their early stages. There have been many important, although in some cases modest, achievements in the first year. Perhaps more importantly, there are early signs that the program is achieving good buy-in from key stakeholders and that there is growing knowledge, commitment and expertise. This provides a good base to build on in years 2 and 3.

There is also a growing understanding of the issues that will need to be addressed if the program is to achieve the transformational change to which it aspires. Some key issues are discussed in the next section.

12.2 Formative conclusions and reflective questions

The next phase of the CSRP will focus on the reduction of ‘avoidable admissions’. This will be a significant challenge involving coordination across primary, secondary and tertiary care. However, the likelihood of success will be heightened if the lessons learned to date are used to inform the ongoing development and improvement of the Program.

This section aims to make a contribution to the Program’s ongoing development by posing a number of questions - in no particular order - as prompts for learning and joint reflection between
those leading and managing the Program, those participating in it and the external evaluators. Whilst based on the qualitative and quantitative findings presented earlier in this report, this section also draws on the wider organisational change literature and the experiences of other health care systems engaged in similar large-scale reform programs. It is written in a spirit of joint or cooperative inquiry between us - the independent external evaluators - and those leading the CSRP. Our belief is that ‘evaluation for learning’ is as important, if not more, in the longer term as ‘evaluation for judgement’. We do not know the right answers to these questions but we do think that they are the right questions to be asking at this early point in the unfolding story of the CRSP.

**Does the CSRP need an overarching ‘framework’ methodology and philosophy?**

Up until now the CSRP has deliberately avoided specifying the means by which project teams should seek to achieve the targets that have been set for them and has not sought to ‘sell’ the CSRP approach to the health system, preferring a ‘learning by doing approach’. We have identified in this report the key elements of the CSRP methodology at a project level. We now ask whether the CSRP needs to develop a common and more explicit philosophy and broad ‘framework’ methodology for all of its constituent projects to adopt and implement. There are both upsides and downsides to this, but one reason for going down this route might be to help project teams to think more radically about service transformation (see next question). Related to this is the question of whether CSRP needs a stronger badge, profile or identity (such as the ‘Maggie Program’) or whether, as it is now, it remains linked and integral to other local improvement projects, and far less visible as a separate entity. An overarching framework may give a clearer direction to the change effort and create a common language for people to talk about it.

**Is the current CSRP approach more likely to result in transformational or incremental change?**

We pose this question because we think it is important that all those leading and involved in the CSRP reflect on the design principles and assumptions upon which the Program is built, and ask whether they will be sufficient to achieve the desired results. The stated aims of the CSRP are transformational in nature and yet, as we indicate in this report, the solutions being implemented to date have generally focused on standard interventions with an emphasis on incremental change.

At this stage we believe that ensuring the design principles of the CSRP are the right ones is more important than the early results themselves. A common feature of improvement programs worldwide is that their ambitions tend to be a lot higher than their consequence or final outcomes – the notion of the ‘implementation gap’ or ‘strategic drift’ – and whilst their achievements are by no means insignificant, they have still not achieved the ‘transformational’ breakthrough levels they have been seeking.

The experience of the English NHS is that the models themselves may be at fault, that programmatic (‘push’) models need to be supplemented by more generative (‘pull’) models (which are based on very different kinds of design principles) if individual interventions are to be ‘scaled up’ to a transformational, system-wide level.

As one example, Bevan and colleagues have detailed the five design principles behind one initiative in the English NHS that (uniquely) did achieve big, system wide, change: the 10 High Impact changes.13 The principles (which might already be present or might be incorporated into the CSRP) are shown in Figure 73.

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**Figure 73 Principles underpinning High Impact Changes**

1. **Create high leverage change principles**

   The aim should be to keep boiling things down to their simplest form so that in the end only a small number of high leverage change principles and practices remained, these being demonstrably the ones NHS organizations needed to focus on in order to achieve their strategic goals.

2. **Do less more thoroughly**

   With local NHS organizations undertaking so many (often disjointed) improvement projects across different departments and units, resources were invariably spread too thinly. In addition senior leaders were complaining of information overload. By identifying fewer priorities and not trying to do everything, NHS leaders could now focus their organizational efforts and resources on only those initiatives that were really going to make a difference.

3. **Quantify potential benefits**

   One problem was the gap between, on the one hand, traditional NHS planning techniques for projecting strategic outcomes and, on the other, the outcome planning approaches of the national improvement programmes, which were often service specific and difficult to co-ordinate or aggregate at a strategic level. In order to bridge this gap, a process for identifying and quantifying benefits that was at least as rigorous as the prevalent planning approach was needed, using hindsight to identify the benefits that teams that had implemented these changes had achieved, and then applying foresight to project these potential gains across the whole NHS.

4. **Design a ‘package’ to encourage Chief Executive/senior leader adoption**

   This aspect needed to draw upon the three things that are known to be critical to the spread and adoption of new practice, namely the ‘product’ itself, the kind of person expected to adopt the new practice, and the context that the person is working in. The decision was taken to design a package of high impact changes specifically for the senior leadership within local health care organisations across the NHS, such as hospitals. This would not be service-specific, as most of the previous national improvement programmes had been, but would draw on the knowledge of the service-specific programs, at the same time being concentrated upon changes that could be applied organisation-wide. The changes would thus be specific enough to make a real difference, but generic enough to have impact in any area or service that was a priority for the organization implementing them.

5. **Create ‘pull’ not ‘push’**

   Many of the levers for changes in the 2000 NHS Plan involved ‘push’ (target led, top down) mechanisms. Whilst undoubtedly this did lead to performance improvements, it showed that externally driven change cannot, on its own, lead to transformational improvement. In this context, a ‘pull’ strategy, where organisations with radical ambitions adopt the changes because they want to, rather than have to, seemed the most appropriate design approach. The design challenge was to align the product so closely with the local senior leaders’ agenda that it would be compelling to all NHS organisations.

Some of these design principles from the NHS confirmed the change of ‘driver’ from ‘targets driven’ to ‘incentives driven’, expressing it thus:

   ...[a commitment to] reform the health system fundamentally, so that change is driven more by incentives to respond to patients than by top-down target setting ... old methods of top-down performance management will not be sufficient to deliver this**

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At this stage of the evolution of the CSRP some consideration of this approach may be warranted and would certainly help to make explicit the current design principles of the CSRP.

**Is the CSRP framed correctly in terms of the balance between performance, safety and quality?**

This first annual report highlights the relative lack of emphasis to date within the CSRP on safety and quality vis á vis performance. As Figure 66 (page 85) demonstrates, many projects simply did not know whether safety or quality had been improved. In our original Evaluation Plan we argued that one cannot say that a particular health care system has 'improved' when performance (efficiency) has improved but not safety or quality. Improvement strategies need to move forward on all three fronts. This importantly relates to the issue of how the CSRP is currently being 'framed' and articulated. What language is currently used to talk about the CSRP? Is this the right language in terms of engaging with key stakeholders across the system? If framed as being concerned with quality and safety rather than performance, it is much more likely to secure clinician engagement (an issue raised in Section 7.4.2 of this report). This also raises the question of whether KPIs now need to be developed and measured for safety and quality as well as performance.

*(Following on from the above) should there be a greater emphasis within the CSRP on improving patient experiences?*

The VEM report suggested that the CSRP is not perceived to be patient-centred. Likewise, the CSRP Program Review in February 2006 noted the consumer involvement was an area requiring more support and attention. Figure 64 on page 80 of this report also reveals a relatively low level of consumer involvement in the CSRP and - as already mentioned - Table 7 on page 51 reflects a very strong emphasis on performance rather than experiential improvements to date. Section 6.4 (page 57) of this report reminds us that focusing on patients is a core goal for the CRSP. It is clear from the CSRP documentation that the concept of a patient journey - and the systems and processes that underpin these journeys - is seen as a key element of the Program. Is there therefore a need to bring the CSRP and the goal of improving patient experiences much closer together? If the answer is 'yes', we believe that there is much potential for the CSRP to use the special form of knowledge known as patient experiences as the basis for a much more dynamic intervention to improve services.

**Where is the organisational development in the CSRP?**

Our view – confirmed by staff we interviewed - is that up until now the emphasis in the CSRP has been on systems and process redesign and not organisational development (OD) in the wider sense (although many of the skills imparted by the consulting partners are OD and change management skills and may therefore be having an influence on the program through this route). A related question for discussion therefore is: should the CRSP embrace OD elements as well, which is arguably the only way of creating more ‘receptive contexts’ for change, particularly in the area of cultural change? (See Section 7.3, page 75)

**Who ‘owns’ the CSRP? ‘Ownership’ is also very much an OD issue**

Our report identifies some differing, and sometimes critical, perspectives as to how ‘centralised’ (or not) the program has been to date. This begs the question as to whether there is now a need for the centre to play more of a ‘help it happen’ rather than ‘make it happen’ role, focusing on ‘enabling’ rather than ‘regulatory’ structures and processes (see Figure 74 below).
Figure 74 How it can happen

‘Let it happen’ ← ‘Help it happen’ → ‘Make it happen’

Features
- Unpredictable, unplanned, uncertain, emergent, adaptive, self-organising
- Negotiated, influenced, enabled
- Scientific, orderly, planned, regulated, programmed, systems ‘properly managed’

Underpinning theory
- Complexity theory
- Knowledge creation cycle
- Social network theory
- Organisational theory
- Knowledge management theory
- Classical management theory

Assumed mechanism for spread of innovations
- Natural, emergent
- Social, organisational & technical
- Managerial

Metaphor for spread of innovations
- Emergence
- Adaptation
- Knowledge creation
- Sense-making
- Diffusion
- Negotiating
- Influencing
- Knowledge transfer
- Disseminating
- Cascading
- Change management
- Re-engineering

Examples of research traditions
- Complex adaptive systems, emergent movements
- Organisational sense-making, narrative in organisations
- ‘Diffusion of innovations’ through social networks, inter-organisational networks, fads and fashions, communication, marketing
- Knowledge management, decision support, EBM and guideline development, classical health promotion
- Organisational development (‘n’ step models)


Can the management of the health system move from a reactive to a more proactive footing?

Related to the question above - and given the improvement in the KPIs that have been achieved to date - does the opportunity now exist to deal with the tension between the proactive approach of the CSRP and the reactive approach that still characterises much decision making? This could focus efforts on achieving the sustainable transformational change on which the Program is premised.

Are the right projects being selected?

The results that the CSRP achieves are dependent, at least in part, on the projects it undertakes. The criteria for project selection are thus critical.

Based on our findings to date, there appears to be a lack of clear criteria for the selection of CSRP projects to this point. Most are clearly focused on the Program’s KPIs. Others appear largely unrelated.
Future project selection needs to be based on both strategic and tactical considerations. At the strategic level, the CSRP has been funded based on a business case that argues that certain KPIs (performance, quality and safety) will be improved. The strategic issue is that projects are selected based on their likely contribution to these KPIs. The alternative is that new KPIs are agreed as the program evolves.

At the tactical level, it will be important to select early projects that are likely to be successful. We have outlined a set of key success factors based on the international literature which provide a helpful framework to guide the selection of future projects.

A related issue is our tentative suggestion that more narrowly defined projects may prove to be more successful in the longer term. It may be that a different strategy is required for more diffuse projects.

It would add value to the Program to establish a system to explicitly evaluate each potential project (and its context) prior to each approval. Projects funded in Year 2 should be those that are most likely to succeed. This is particularly the case in a challenging area such as the reduction of avoidable admissions. Based on the outcomes of Year 2, higher risk projects could then be considered (and carefully evaluated) in Year 3.

Can the changes be sustained?

In the long term we believe that capability development may be more important than the early quantitative improvements reported by the CSRP because it is this that makes the changes sustainable. Does the CSRP therefore need to do more to build more capability in the system by means of personal development, team development as well as the organisational development mentioned earlier? This is, after all, where sustainability will come from once external partners leave the projects. Table 10 on page 62 details the skills learnt to date by project teams from the external partners.

One possibility for years 2 and 3 of the CSRP is to use the NHS sustainability tool (see Appendix 3) in a formative sense to help staff and teams involved in the CSRP to identify and jointly discuss the strengths, weaknesses and vulnerabilities of their local efforts and to take steps to remedy them. Certainly, the VEM report raised some question marks around sustainability (see discussion of ‘energetic depletion’). At the same time, at the strategic level of a program like CSRP, it is crucially important to bring service development, organisational development, and leadership and management together, since the absence of any one of these will have a negative effect on the others and jeopardise the prospects of spread and sustainability.

Does the CSRP have a strategy for spread to address the issue of intra- and inter-organisational variability?

Both the VEM and this report talk about ‘patchy’ results, as does the literature generally. So, how can the CSRP achieve greater consistency in results and narrow the gap between high performers and low performers both within and between organisations and, in so doing, achieve genuine system wide improvement? Does NSW Health have - or is it seen by participants to have - a strategy for spread and sustainability and, if not, should it have? If asked by units to explain or provide guidelines as to how to achieve these things, could the CSRP currently do this?

As noted in our introductory comments to this section, the questions we have posed aim to contribute to the ongoing development of the CSRP. The experiences of the CSRP are, at this stage, consistent with the results being reported in the wider organisational change literature and the experiences of other health care systems engaged in similar large-scale reform programs.
Internationally, there is much to be learned and countries worldwide are grappling with the same issues.

The NSW health system has set for itself the huge challenge of achieving transformational improvements in performance, quality and safety. The difficulty in achieving this cannot be underestimated. Our conclusion at the end of Year 1 is that there are good signs and prospects. Our annual reports over the next two years will increasingly focus on assessing the degree to which the potential of the CSRP is being realised, with the goal of capturing the learning about how large scale systems improvement can best be achieved and sustained.
Bibliography

NSW Health CSRP Program Review, February 2006.
NSW Health CSRP Social Network Analysis slides
NSW Health Knowledge Audit Findings and Recommendations “Building Bridges to better patient care” - Report from ThinkingShift: January 2006 - Follows the mapping phase of the Australian KM Standard
NSW Health Knowledge Framework Project – Final Report August 2006 PA Consulting group (Confidential)
NSW Health Knowledge Management Project Delivery Plan, “Building Bridges to better patient care” March 2006-10-15
Appendix 1

Glossary of terms

Change
First-order change is a variation in the way processes and procedures have been done in a given system, leaving the system itself relatively unchanged. Some examples are creating new reports, creating new ways to collect the same data, and refining existing processes and procedures.

Second-order change occurs when the system itself is changed. This type of change usually occurs as the result of a strategic change or a major crisis such as a threat against system survival. Second-order change involves a redefinition or re-conceptualisation of the business of the organisation and the way it is to be conducted. Changing from a paper-based medical record to an electronic medical record represents a second-order change, just as automated teller machines redefined the way that many banking functions are conducted worldwide.

Clinical redesign
Redesigning processes based on seven principles - focus on patient journeys; design journeys to work well for patients, families and staff; solutions designed by front line staff; Design IM&T strategy to underpin journeys; guarantee implementation across areas; skill up management to lead new approach; examine/structure organisation to support new model.

Clinical Redesign Unit (CRU)
Established in area health services and overseen by a member of the area senior executive, the CRU will ensure the key components of the CSRP are implemented and achieve the targeted results.

Communities of practice
Groups of people who develop competence and good practice in a defined area. Also known as enabling or knowledge networks, communities of practice bring together and attract people who do not normally work together to share their knowledge and create better working practices. Communities of practice may continually emerge and dissolve. They act as mechanisms for increasing tacit knowledge and also for transforming tacit knowledge into explicit knowledge. Communities of practice are normally considered to build corporate capability in knowledge-focused organisations but they can also be considered in improving practices and sharing knowledge across organisations.

Communities of Interest
Groups of people who share knowledge and experience based around a common interest. A community of interest is often broader in scope than a community of practice and may have members who join to learn. These communities may exist inside and outside organisations, e.g. hobby, professional standards, ethics, benchmarking groups, etc.

External partners
To assist each AHS in the CSRP, NSW Health established a panel of external service providers to provide expert advisory services, which may be accessed by each AHS. The panel is designed to provide skills in business process re-engineering, change management and management capacity development in order to assist each AHS to achieve the identified outcomes.

Formative evaluation
A type of evaluation conducted during the course of program implementation whose primary purpose is to ‘loop back’ in order to provide ongoing information and analysis that will help improve the program as it goes.
**Generalisability**
The extent to which the findings of the evaluation can be applied to other populations, settings and times beyond the scope of the program.

**Indicator**
A measure that consists of hierarchically ordered categories arranged in ascending or descending order of desirability.

**Information management**
The effective production, co-ordination, storage, retrieval and dissemination of information from internal and external sources and in whatever format in order to improve the performance of the organisation.

**Knowledge** *(definition based on Knowledge Management Standard Vocabulary (HB189-2004))*
A body of understanding and skills that is constructed by people. Knowledge is increased through interaction with information.

**Information** *(definition based on Knowledge Management Standard Vocabulary (HB189-2004))*
Data (often processed) in a context to which meaning has been attributed. A working definition of the distinction between information and knowledge is that knowledge is information made actionable.

**Knowledge management**
A trans-disciplinary approach to improving organisational outcomes and learning, through maximising the use of knowledge. Knowledge Management is concerned with innovation and sharing behaviours, managing complexity and ambiguity through knowledge networks and connections, exploring smart processes, and deploying people-centric technologies.

**Re-engineering**
To create radically new processes at all levels. Whereas quality programs produce gradual improvements over time, re-engineered efforts aim to produce immediate, breakthrough changes in operations.

**Social network analysis**
The discovery, mapping and measuring of relationships, flows and interactions between people, groups and organisations. Social network analysis is a valuable tool for discovering key experts or decision makers in organisations; identifying organisational knowledge flows and exchanges; and finding out who people really talk to when they want to find out information. The relationships mapped may be strong or weak ties between groups or people. The nodes in the network are the people and groups while the links show relationships or flows between the nodes.

**Stakeholders**
Those people with a direct or indirect interest (stake) in a program or its evaluation.

**Summative evaluation**
A backward looking evaluation conducted at the end of a program (or a phase of the program) to determine the extent to which anticipated outcomes were produced. Summative evaluation is intended to provide information about the value or worth of a program (i.e. to sum up the program).

---

16 Definition from the Australian Knowledge Management Standard (AS 5037 2005), published November 2005.
## Appendix 2

### Projects in-scope for the Year 1 evaluation

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Project name</th>
<th>Year 1 survey</th>
<th>Review of solutions</th>
<th>External partner rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance</td>
<td>Ambulance SWITCH project</td>
<td>Y</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>CHW 1</td>
<td>Periop: joining the dots</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>DOH 1</td>
<td>Statewide chronic care CHIME</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>DOH 2</td>
<td>Statewide cardiology</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>DOH 3</td>
<td>Statewide mental health</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>GS 1</td>
<td>Surgical redesign</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GW 2</td>
<td>Dubbo surgical flow</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>GW 3</td>
<td>Discharge planning – Bathurst Dubbo, Orange,</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>HNE 1</td>
<td>Acute Mental Health (adult)</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>HNE 2</td>
<td>Transfer care coordination</td>
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<td></td>
<td>Y</td>
</tr>
<tr>
<td>HNE 3</td>
<td>Maitland Hospital After Hours Theatre Access</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>HNE 4</td>
<td>Community mental health (adult)</td>
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<td></td>
<td></td>
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<tr>
<td>HNE 5</td>
<td>Newcastle Mater access block</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>NC 1</td>
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<td>Y</td>
<td>Y</td>
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<tr>
<td>NC 2</td>
<td>Lismore Base Hospital Patient Flow (joint response with NC 1)</td>
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<tr>
<td>NC 3</td>
<td>Tweed Hospital Patient Flow</td>
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<td></td>
</tr>
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<td>NC 4</td>
<td>Port Macquarie Base Hospital Patient Flow</td>
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<td>Y</td>
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<td>Mental health redesign (RNSH and Hornsby)</td>
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<td>NSCC 2</td>
<td>Royal North Shore Hospital ED</td>
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</tr>
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<td>NSCC 3</td>
<td>Surgical journey</td>
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</tr>
<tr>
<td>SESI 1</td>
<td>St George ED patient flow (Dragon)</td>
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<td>SESI 2</td>
<td>Wollongong ED flow (joint survey response to SESI 4)</td>
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<td>Y</td>
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</tr>
<tr>
<td>SESI 3</td>
<td>St Vincent's Hospital ED Patient Flow</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>SESI 4</td>
<td>Wollongong inpatient flow (joint response with SESI 2)</td>
<td>Y</td>
<td>Y</td>
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<td>SESI 5</td>
<td>POW Improving discharge, improving access</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSW 1</td>
<td>Surgical demand</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>SSW 2</td>
<td>ED Mental Health</td>
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<td>Y</td>
<td></td>
</tr>
<tr>
<td>SSW 3</td>
<td>Liverpool Hospital Patient Flow</td>
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</tr>
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<td>SSW 4</td>
<td>Royal Prince Alfred Hospital Patient Flow</td>
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</tr>
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<td>SW 1</td>
<td>Cardiovascular patient flow</td>
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</tr>
<tr>
<td>SW 2</td>
<td>Surgery</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>SW 3</td>
<td>Access and patient logistics</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Year 1 Survey:** Y = Project was sent the survey to complete.

**Review of solutions:** Y = Solutions developed by project included in review of solutions

**External partner rating** Y = Rating of external partner performance provided to external evaluation team
Appendix 3

NHS Sustainability Tool

NHS Sustainability Model

Authors
Louise Maher* David Gustafson* Alyson Evans*

Directions
Read through the model.
Select the level of each factor that best describes your situation.
Circle or mark your score.
Add the scores from each factor box that you selected and enter into
the assessment panel at the bottom.

Scores
Preliminary evidence suggests a score of 55 or higher offers reason for optimism
while a score of 45 or lower suggests that you need to take some action to
increase the likelihood that your improvement initiative will succeed.

Look initially at the factors that you scored with lower marks. You will find some
useful information in the corresponding section of this guide which will help you
to devise an action plan for improvement.

You will find it helpful to continue to use the model over time and we suggest
review sessions at intervals of three to six months.

We are continuing to assess the use and impact of the sustainability model.
We would be pleased to receive any thoughts or comments that you have for
improvement.

* National agency of the National Health Service (England, UK), John Nott, Louise Cave
* University of California, University of California, Los Angeles, University of California, San Francisco

Process

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
<th>Factor Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits beyond helping patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The change increases efficiency and makes jobs easier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The change increases efficiency but does not make jobs easier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The change does not increase efficiency but does make jobs easier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The change neither increases efficiency nor makes jobs easier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credibility of the benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of the change are immediately obvious supported by evidence and believed by stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of the change are not immediately obvious even though they are supported by evidence and believed by stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of the change are not immediately obvious even though they are supported by evidence. They are not believed by stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of the change are neither immediately obvious supported by evidence nor believed by stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptability of improved process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process can be adapted to other organisational changes and there is a system for continually improving the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process can be adapted to other organisational changes but there is no system for continually improving the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process is not able to adapt to other organisational changes but there is a system for continually improving the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The process is not able to adapt to other organisational changes and there is no system for continually improving the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectiveness of the system to monitor progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a system in place to identify evidence of progress monitor progress, action is taken and successes reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a system in place to identify evidence of progress monitor progress, action is taken and successes are not reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a system in place to identify evidence of progress and some act on it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is no system in place to identify evidence of progress or to monitor progress, nor act or communicate it</td>
<td></td>
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</tr>
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</table>

Process Total Score

<table>
<thead>
<tr>
<th>Factor</th>
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<tbody>
<tr>
<td></td>
<td>0</td>
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</table>

First annual evaluation report on the NSW Clinical Services Redesign Program
### Staff

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
<th>Factor Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff involvement and training to sustain the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff attitudes toward sustaining the change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior leadership engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical leadership engagement</td>
<td></td>
<td></td>
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</tbody>
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#### Staff Total Score

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1st Assessment</td>
<td>2nd Assessment</td>
<td>3rd Assessment</td>
</tr>
</tbody>
</table>

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### Organisation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
<th>Factor Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a history of successful sustainability improvement goals consistent with the organisation's strategic aims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a history of successful sustainability but the improvement and organisation is strategic aims are inconsistent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a history of successful sustainability but the improvement goals are consistent with the organisation's strategic aims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a history of successful sustainability and the improvement goals are inconsistent with the organisation's strategic aims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff, facilities and equipment, job descriptions, policies, procedures and communication systems are appropriate for sustaining the improved process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is an appropriate level of staff, facilities and equipment, but inadequate job descriptions, policies, procedures and communication systems for sustaining the improved process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The level of staff, facilities and equipment to sustain the change are not appropriate through job descriptions, policies, procedures and communication systems are inadequate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The staff, facilities and equipment, job descriptions, policies and procedures and communication systems are all appropriate for sustaining the change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Organisation Total Score

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>1st Assessment</td>
<td>2nd Assessment</td>
<td>3rd Assessment</td>
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</tbody>
</table>

#### Staff Total Score

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<table>
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</thead>
<tbody>
<tr>
<td>1st Assessment</td>
<td>2nd Assessment</td>
<td>3rd Assessment</td>
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</tbody>
</table>

#### Process Total Score

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<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>1st Assessment</td>
<td>2nd Assessment</td>
<td>3rd Assessment</td>
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</table>

#### Sustainability Total Score

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>1st Assessment</td>
<td>2nd Assessment</td>
<td>3rd Assessment</td>
</tr>
</tbody>
</table>

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How to calculate your score:

1. Add the Process, Staff and Organisation scores together and place in the Sustainability Total Score box.
2. The closer your score is to 100, the better chance of successful sustainability. 55 or higher offers reasons for optimism. 45 or lower suggests reasons for concern.
### Table 16  Details of levels of aggregation

<table>
<thead>
<tr>
<th>Level (number of groups)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan / Non-Metropolitan Area Health Services (2)</td>
<td><strong>Metropolitan:</strong> Children’s Hospital&lt;br&gt;Sydney South West AHS&lt;br&gt;South East Sydney/Illawarra AHS&lt;br&gt;Sydney West AHS&lt;br&gt;North Sydney/Central Coast AHS&lt;br&gt;Hunter/New England AHS&lt;br&gt;<strong>Non-Metropolitan:</strong>&lt;br&gt;North Coast AHS&lt;br&gt;Greater West AHS&lt;br&gt;Greater Southern AHS</td>
</tr>
<tr>
<td>Teaching / Non-teaching hospitals (2)</td>
<td><strong>Teaching Hospitals:</strong> John Hunter&lt;br&gt;Liverpool&lt;br&gt;St. George&lt;br&gt;Royal Prince Alfred&lt;br&gt;Royal North Shore&lt;br&gt;Westmead (all)&lt;br&gt;Prince of Wales&lt;br&gt;St. Vincent’s - Public&lt;br&gt;Concord&lt;br&gt;Gosford&lt;br&gt;Nepean&lt;br&gt;Wollongong&lt;br&gt;Bankstown/Lidcombe&lt;br&gt;Children’s Hospital Westmead&lt;br&gt;Sydney Children’s&lt;br&gt;Newcastle Mater&lt;br&gt;Sydney Eye Hospital&lt;br&gt;Sydney Hospital&lt;br&gt;<strong>Non-Teaching Hospitals:</strong> All other Hospitals</td>
</tr>
<tr>
<td>Peer Group of Hospital (4)</td>
<td>A, B, C or D</td>
</tr>
</tbody>
</table>
Seasonal decomposition and trend model

The X11 method was implemented in SAS v9.1 using additive models. These models specify that the data can be decomposed into three components, a trend, seasonal and irregular component and these components work together additively. The model can be represented as follows:

$$X_t = C_t + S_t + I_t$$

where X represents the original series, C identifies the trend-cycle component, S is the seasonality, I the irregular component and the subscript t represents time.

X11 uses iterative algorithms based on moving averages to refine estimation of these components accounting for irregularities in the series, to produce a smoothed, or trend series. The first step in the algorithm is to calculate a moving average of the monthly series in order to create a first estimate of the trend. In general a P x Q moving average is equivalent to applying a simple moving average of order (length) P with weights 1/P then a simple moving average of order Q with weights 1/Q.

In the X11 method uses a 2 x 12 moving average, equivalent to applying a simple moving average of order 2 with weights of 1/2, and then a simple moving average of order 12 with weights of 1/12. The effect of this is to create a smoothed estimate using a weighted average of the 6 past time points, the actual time point and the following 6 time points of the unadjusted series. The weighting pattern for each of these terms is: \{1,2,2,2,2,2,2,2,2,2,2,2,1\} and the smoothed term is given by:

$$Y_t = 1/24 (X_{t-6} + 2X_{t-5} + 2X_{t-4} + 2X_{t-3} + 2X_{t-2} + 2X_{t-1} + 2X_t + 2X_{t+1} + 2X_{t+2} + 2X_{t+3} + 2X_{t+4} + 2X_{t+5} + X_{t+6})$$

This is called a symmetric (weights are symmetrical), centered (same number of time points backwards as forward) moving average. Asymmetric moving averages are used in the X11
method, in addition to symmetric averages to create estimates of trend at the beginning and end of
the series. The basic algorithm is described below and details the further steps.

**Figure 75  X-11 seasonal decomposition algorithm**

1. Estimation of the trend-cycle by a 2x12 moving average
   \[ C_t^{(1)} = M_{2x12}(X_t) \]

2. Estimation of the seasonal-irregular component
   \[ (S_t+U_t)^{(1)} = X_t - C_t^{(1)} \]

3. Estimation of the seasonal component by a 3x3 moving average over each month:
   \[ S_t^{(1)} = M_{3x3}[(S_t+I_t)^{(1)}] \]
   and normalisation
   \[ S_t^{*(1)} = S_t^{(1)} - M_{2x12}(S_t^{(1)}) \]

4. Estimation of the seasonally adjusted series
   \[ A_t^{(1)} = (C_t + I_t)^{(1)} = X_t - S_t^{*(1)} \]

5. Estimation of the trend-cycle by a 13-term Henderson moving average:
   \[ C_t^{(2)} = H_{13}(A_t)^{(1)} \]

6. Estimation of the seasonal-irregular component:
   \[ (S_t+I_t)^{(2)} = X_t - C_t^{(2)} \]

7. Estimation of the seasonal component by a 3x5 moving average over each month:
   \[ S_t^{(2)} = M_{3x5}[(S_t+I_t)^{(2)}] \]
   and normalisation
   \[ S_t^{*(2)} = S_t^{(2)} - M_{2x12}(S_t^{(2)}) \]

8. Estimation of the seasonally adjusted series:
   \[ A_t^{(2)} = (C_t + I_t)^{(2)} = X_t - S_t^{*(2)} \]

Reference: Seasonal Adjustment with the X-11 Method (Ladiray, Quenneville, 2001)

To determine if stable seasonality is present in a series, SAS carries out a test for seasonality: the "Stable Seasonality Test" is a one-way analysis of variance on the Seasonal Irregular Ratios with months as the factor. A large F and small significance level is evidence that a significant amount of variation in the SI-ratios is due to months, which in turn is evidence of seasonality; the null hypothesis of no month effect is rejected.

A test for moving seasonality has also been carried out which performs an F-test for moving seasonality by a two-way analysis of variance. The two factors are months and years. The years effect is tested separately; the null hypothesis is no effect due to years after accounting for variation due to months.

By combining the F-tests for stable and moving seasonality, along with a Kruskal-Wallis test for stable seasonality, a test for identifiable seasonality is performed. This test gives an indication of whether seasonality is present in the series and whether the seasonality is stable. An additive model is most appropriate under stable time series, and a multiplicative model under moving seasonality.
The seasonality tests were carried out for series relating to emergency admission performance, and triage times, at the state, metro/non-metro, teaching hospital, peer and other levels produced in the analysis. Of the series analysed, all but one individual series for an area health service exhibited identifiable seasonality and, in the majority of cases, this seasonality was stable. Hence the use of the additive model described above.

Original series and trends in emergency admission performance

**Figure 76 Original series and trends John Hunter Hospital**

**Figure 77 Original series and trends ABIP hospitals**
Figure 78 Original series and trends non-ABIP hospitals

Figure 79 Original series and trends PA Consulting Group hospitals
Figure 80 Original series and trends Accenture hospitals

Figure 81 Original series and trends KPMG hospitals
Figure 82  Original series and trends PWC hospitals

Figure 83  Original series and trends Westmead Children’s Hospital
**Figure 84** Original series and trends Sydney South West

![Graph showing emergency admission performance trends for Sydney South West from July 1999 to April 2006.](image)

**Figure 85** Original series and trends South Eastern Sydney/Illawarra

![Graph showing emergency admission performance trends for South Eastern Sydney/Illawarra from July 1999 to April 2006.](image)
Figure 86 Original series and trends Sydney West

Figure 87 Original series and trends Northern Sydney/Central Coast
**Figure 88** Original series and trends Hunter New England

**Figure 89** Original series and trends North Coast
**Figure 90 Original series and trends Greater Southern**

![Graph showing original series and trends Greater Southern]

**Figure 91 Original series and trends Greater Western**

![Graph showing original series and trends Greater Western]