ACI Clinical Innovation Program

Evaluation of a Geriatric Flying Squad Program of South-Eastern Sydney Local Health District

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Author: Blake Angell, Analyst, Health Economics and Evaluation Team

Owner: Agency for Clinical Innovation

Postal address:
Agency for Clinical Innovation
PO Box 699
Chatswood NSW 2057

T +61 2 9464 4666
F +61 2 9464 4728
info@aci.health.nsw.gov.au
www.aci.health.nsw.gov.au

Street address:
Level 4, Sage Building
67 Albert Avenue
Chatswood NSW 2067

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AGENCY FOR CLINICAL INNOVATION
Level 4, Sage Building
67 Albert Avenue
Chatswood NSW 2067

Agency for Clinical Innovation
PO Box 699 Chatswood NSW 2057
T +61 2 9464 4666 | F +61 2 9464 4728
E info@aci.nsw.gov.au | www.aci.health.nsw.gov.au

Produced by: Blake Angell

Ph. +61 2 8507 2523
Email. blake.angell@health.nsw.gov.au

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1. Executive Summary

The Clinical Innovation Program aims to identify innovative programs implemented in Local Health Districts (LHDs) that may be suitable for scaling-up across the State or to other LHDs without similar programs. Potential programs are identified through the annual Healthcare Innovation Awards then investigated and assessed to determine their suitability for broader implementation.

Using the above process, the Southcare Geriatric Flying Squad (GFS) of South Eastern Sydney Local Health District (SESLHD) was identified by the ACI as potentially suitable for further rollout across the state. The GFS aims to:

- Improve the quality of care for older adults living in Residential Aged Care Facilities (RACFs) by reducing disruptions in care and complications that can occur as a result of hospital transfer and admission
- Reduce hospital admissions via direct intervention during acute episodes within the RACF rather than transferring the resident to the Hospital/Emergency Department.
- Bypass emergency departments by facilitating direct admissions if needed.
- Capability building of RACF staff with a focus on assessment and triage, but also includes delivery of interventions.

Prior to July 2014, the GFS program worked closely with the Nurse Practitioner Aged Care Team (NPACT) which enabled the service to provide an after-hours and weekend service to older people residing in aged care facilities. Since July 2014 the two programs have merged under one common funding source.

This report presents the findings of evaluations of the program undertaken by SESLHD. The GFS is an innovative and locally developed initiative to an issue common to many, if not all, contexts across the state. Evidence shows that the GFS has enabled this patient cohort to be treated in a manner that they prefer, without adverse outcomes and with significant cost and resource savings for the LHD that can now be redirected to other areas. The findings of the evaluation included:

- *The GFS is efficient and has freed up capacity*. The flying squad has resulted in efficiencies of per annum of approximately $1M, with around 1,342 beddays avoided and nearly 370 presentations to hospitals. It has also allowed the LHD to offset costs by billing Medicare for provision of geriatric services in instances.
- *The GFS is preventing hospitalisations and hospital attendances*. 94% of clients (a total of 747 over the 20 months from November 2011 to April 2014) who would otherwise have attended a hospital ED were able to remain in their facility. The GFS Geriatrician is available to provide clinical supervision and consultation for each episode as needed (approximately 50% of cases).
- *There is significant stakeholder support for the GFS*. A survey in May 2014 of external stakeholders (GPs, nurses and families and carers) of the Geriatric Flying

Squad was conducted. The results indicated a significant level of support for the program, including for example:

- 100% of GPs felt that the referral to the GFS was appropriate and appropriate assessments and interventions had been undertaken.

- 100% of nurses responded that the referral process was easy to complete, the response of the team was prompt and their communication was good, that appropriate assessments were undertaken and that they understood the reasons for interventions.

- 100% of clients and families felt that appropriate assessments were undertaken, that the reason for referral to GFS was explained to them at the time and were happy with the communication regarding the referral and assessment.

2. Introduction

The Geriatric Flying Service (GFS) was introduced by the South Eastern Sydney Local Health District (SESLHD) in November 2011 as a means of improving the care experience of older patients within the district and reduce inappropriate hospital admissions. The current service incorporates the services previously provided under the Nurse Practitioner Aged Care Team (NPACT).

This report presents evaluation findings of both the initial GFS Program and the NPACT service which now operate under the one banner – the Geriatric Flying Squad. The service was entered into the 2013 Healthcare Innovation Awards where it was selected by the NSW Agency for Clinical Innovation (ACI) as potentially suitable for rollout across the State as a part of the Clinical Innovation Program. The ACI's Clinical Innovation Program supports clinical innovation in the NSW health system through a focus on accelerating implementation of ACI Models of Care/Guidelines and supporting the spread of local innovations.

To determine suitability for rollout across the State, the program was subject to an evaluation to ensure suitability for rollout across NSW. In setting up the program SESLHD, embedded a strong focus on evaluation and continually evaluated the impact of the program as it has been delivered in slightly varying models across the LHD. The findings of the evaluation carried out by the LHD are presented here and cover the resource utilisation outcomes of the program in terms of avoided hospital attendances and admissions, cost implications of the program and the experience of patients, carers and staff during and after the transition to the program.

2.1 The Geriatric Flying Squad

The GFS aims to:

- improve the quality of care for older adults living in RACFs by reducing disruptions in care and complications that may result from transfer and admission to hospital
- reduce hospital admissions by providing care directly in the RACF
- reduce emergency department presentations by facilitating direct admissions when necessary.

Key features of the service are:

- The team, led by a geriatrician, conducts assessments of a resident's health within the RACF
- Treatment is commenced in line with patient preferences and need.
- A management plan is developed and communicated to family and relevant staff and physicians.

- Ongoing review is provided until discharge from the service. The on-call Geriatrician is available to provide support after hours.

2.1.1 GFS Benefits

The program aims to achieve benefits across the following five channels:

1. Provide timely and effective interventions during acute episodes of illness within the residential aged care facility
2. Reduce avoidable Emergency Department presentations and flow on admissions from RACFs
3. Reduce risk of adverse outcomes related to hospitalisation
4. Improve terminal care services
5. Reduce impact of unnecessary transfers on ambulance service

The LHD has evaluated the program with regards to the resource savings and experiences of the patients, RACFs and primary care physicians. The detailed findings of the evaluation are presented below. In summary the GFS has enabled this patient cohort to be treated in a manner that they prefer, without adverse outcomes and with significant cost and resource savings for the LHD that can now be redirected to other areas.

3. Methods and Results

SESLHD has undertaken qualitative and quantitative evaluation of the Geriatric Flying Squad program. The methodologies and associated impacts used by the LHD and ACI to determine the impact of the program on these levels is described here.

3.1 General Characteristics of GFS Clients

As at May 2014 there were 25 Residential Aged Care Facilities in the Sutherland Shire accommodating approximately 2,500 frail aged residents. The number of beds continues to increase with an extra 300 added since the start of the program and an extra 380 planned over the next 18 months. Key characteristics of GFS Clients are:

- The mean age of clients of the service was 86 years.
- There were approximately twice as many women seen as men.
- 90% of referrals to the service were from high care facilities or those with ageing in place.
- The average time to see a resident by a geriatrician was 91 minutes from time of referral (this ranged from 5 to 360 minutes) n=459.
- Interventions provided by the service included parenteral hydration, oral or intravenous antibiotics, analgesia, rationalisation of medications, urinary catheter management and palliative care. Most patients required multiple interventions at the same time and one quarter of referrals were provided terminal palliative care.

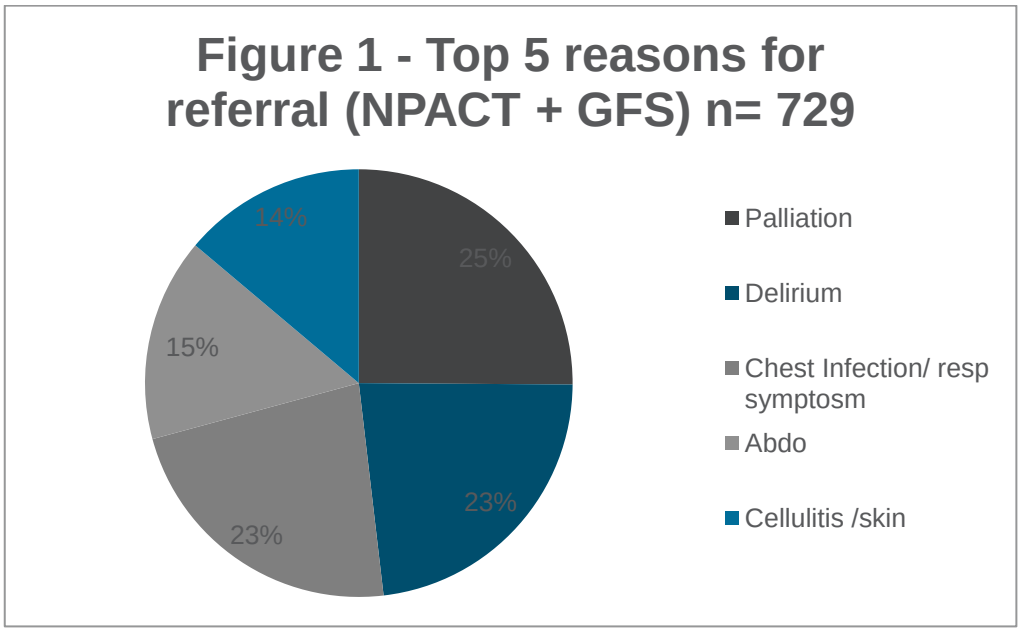

Figure 1 above shows the top 5 referral reasons for the NPACT and GFS program.

In addition

- 94% of referrals to the service were managed in the facility.
- The average client of the program receives 2.07 visits during their acute phase with an average of an additional 3.1 indirect care interventions per client. Indirect interventions include phone calls, emails, faxes, reviewing investigation results.

3.2 Quantitative Analysis

SESLHD has evaluated the impact of the program on resource use in terms of a reduction in ED presentations and hospital admissions.

To augment the SESLHD approach, the ACI considered three different cost methodologies to estimate the impacts of the program with regards to resource use for the LHD. These different methodologies produced resources savings of between $652,000 and $1.4M per year.

The evaluation is based on program data from November 2011 to June 2014 in which 980 patients were seen by the program and LHD estimates that 50% of this population may have been subsequently admitted to hospital. The impact of the program is felt through reduced ED presentations and subsequent admissions to hospital. Three different methods were used to estimate the cost implications of these figures. These are outlined in Tables 1-3. These can be considered an upper and lower bound for the resource savings incurred by SESLHD.

Table One - Average Cost per Patient over 75 in SESLHD	Patients	Cost Avoided
Total Number of Patients Seen by GFS	**980**	**4,878,930**
Hospital Admissions Avoided (includes ED presentation costs)*	490	4,421,270
Emergency Presentations without admission Avoided**	490	457,660
NET Efficiency		**3,838,930**
Annual Efficiency		1,439,599

*Median age of 86 - so use over 75 cost per admission for SES of $9,023 top 20 DRGs
**ED Presentation cost of 0.2 by 2013 NSW efficient price of $4671 gives $934

The approach used in Table 1 uses previous analysis carried out by the ACI in the cohort of patients aged 75 and over in SESLHD. For this group of patients the ACI analysis found that the:

- ALOS was 7.9 days
- average cost per patient admitted in the SESLHD for the top 20 Diagnosis Related Groups (DRGs) is $9,023.
- The NWAU weight for treating these patients is approximately 1.9

Using the above figures:

- the beddays and cost avoided for the 490 patients that would have been admitted results in gross savings of 3,871 beddays and $4.4M over the 32 months.
- for ED presentations, LHD data suggests a NWAU weight of 0.2 for an average presentation in this group which can be multiplied by the State efficient price of $4,671 which provides an average cost per presentation of $934. This gives a total cost saving over the 32 months of $0.5M for these reduced presentations.

The service costs the LHD $400,000 a year to run resulting in annual savings of $1.4M and annual bedday savings of 1,452.

Table Two - SESLHD Data using State Price	Patients	Cost Avoided
Total Number of Patients Seen by GFS	**980**	**3,661,770**
Hospital Admissions Avoided (includes ED presentation costs)*	490	3,204,110
Emergency Presentations without admission Avoided**	490	457,660
NET Efficiency		**2,621,770**
Annual Efficiency		983,164

*NWAU weight of 1.4 per admitted episode - use NSW price of 4,671 gives $6,539
**ED Presentation cost of 0.2 by 2013 NSW efficient price of $4671 gives $934

Table 2 outlines a second methodology using NWAU weight estimates provided by the LHD. Using historical LHD data, patients over 65 would be expected to incur an average acute length of stay of 6.7 days in an aged care ward. Multiplied by the 490 patients that avoided admission this gives a total beddays saved over the 32 months of 3,283 and an annualised amount (per year) of 1,231. NWAU data is then used to estimate LHD average costs per inpatient aged care episode avoided. The local

average NWAU per acute inpatient aged care episode is 1.4 and for each emergency presentation is 0.2. Multiplying these weights by the 2013-14 State Efficient Price of $4,671 gives total annual savings of $983,164 per year once the cost figures are taken out and annualised beddays saved of 1,231.

Table Three - ABM Portal Data	Patients	Cost Avoided
Total Number of Patients Seen by GFS	**980**	**3,661,770**
Hospital Admissions Avoided (includes ED presentation costs)*	490	2,478,910
Emergency Presentations without admission Avoided**	490	304,290
NET Efficiency		**1,743,200**
Annual Efficiency		653,700

*SES Average Cost per admission 65-74 $4,867, 75-84 $4,964 and 85 plus $5,347 gives $5,059
**Average ED Presentation SES - ABM Portal of $621

Table 3 uses Activity Based Management Portal data for the LHD for an average of patients in SESLHD over 65 giving an admission cost of $6,539. The average ED presentation from this data cost $621. This gives an annual saving of $652,000 for the LHD net of service costs. Beddays avoided were not able to be robust calculated.

Importantly under any of these methodologies there is also additional revenue being generated via billing Medicare for the primary health care services provided to patients. This could not quantified for the purpose of this evaluation.

3.2.1 Limitations of these Approaches

All of the estimates above rely on assumptions on the patients being treated by GFS. The ABM portal data presents an average of all patients in the LHD for this age group (65 and above). However, if it happens that GFS is seeing more complex patients than this average the other estimates may provide a better guide. Given that GFS sees patients aged 65 and over, the Figures in Table 1 may overstate the true savings accruing to the LHD as the numbers are based on analysis of patients over the age of 75, which are likely to be more expensive to treat. However, given that the median age of patients for the service was 86, the chances of this being an overstatement may be minimised. At the same time Table 3 may understate the resource implications as it is based on stays in aged-care wards for those aged 65 and over when it seems this is an older cohort on average.

Given the above it is suggested that the midpoint figure form all three approaches be used which shows that NET savings (that is after the costs of the program are removed – this gives an annual saving of around **$1M per year, beddays avoided of 1,342 and around 370 presentations to hospital.**

3.3 Survey of External Stakeholders

The LHD has also evaluated the impact of the service in terms of the experiences of patients and their families as well as service providers – both from RACFs as well GPs who are the main primary care provider to these patients.

The survey of external stakeholders provided insights into the patient and service provider experience in using the GFS. The external stakeholders defined by SESLHD included three key groups:

- *GPs* who are the patient's primary physicians and may refer to GFS during an acute episode to enable to the resident to remain within the facility.
- *registered nurses (RN*) within the RACF who identify residents who are deteriorating and contact GPs or GFS directly if the GP is unavailable and the client or family consent.
- *patients* or, as was the case in all responders to the survey, the family members of the patient.

In May 2014 the LHD undertook three separate surveys to obtain feedback on the service. A total of 45 clients were reviewed by the GFS during May 2014, 27 of these were surveyed. For each of these clients the client (or family) themselves, the GP involved and the RN responsible for referral from the RACF were all surveyed. Surveys were distributed via mail and respondents were provided with a reply paid envelope included to return the survey (see Appendices 1-3 for a full copy of each questionnaire).

3.3.1 Limitations of the survey approach

The primary limitation of the surveys conducted were that the LHD was unable to survey all clients over the given period (May 2014) as a result of lack of contact details of the resident or family, the staff resources available to conduct and collate the survey, involvement of after-hours Local Medical Officers in the referral process made contact difficult and the RN was unavailable to complete the survey.

The LHD plans to repeat the survey again over the next year and it is anticipated that administrative staff will be available to facilitate the distribution of surveys to enable a larger number of clients to be included in the survey.

Key outcomes of the survey against the relevant questions are shown in the table below.

Group	Questions	Responses
RACFS (Response Rate = 52%)	Ease of the referral process	100% said referral process easy to complete
	Promptness of the response to the referral	100% said GFS was prompt and within expected timeframes
	Perceived appropriateness of the assessments carried out of the client	100% felt appropriate assessments were undertaken with the client
	Understanding of the reasons behind the intervention and plan implemented	100% responded they understood the reasons for the interventions and plan implemented by GFS
	Communication regarding the referral	100% were happy with the communication from GFS to them while 93% were happy with communication from GFS to the patients family
	Time that the episode and process took up for the nurse.	79% responded that GFS did not take up too much of their time and that their time spent on the patient did not result from an increased workload as a result of GFS being involved with the patient.
	Satisfied with the Service Provided	100% of RNs reported that they were happy with the service and support provided by the team and all would be happy to refer the resident to GFS in the future.
GPs (response rate = 41%)	Referral to GFS	100% of GP respondents felt that the referral was appropriate
	Assessments undertaken	100% felt that appropriate assessments were undertaken
	Interventions carried out and plan put in place for the patient	100% agreed with the interventions carried out and plan put in place
	Communication around the episode of care.	73% felt that the communication with them were appropriate
	GPs were also asked whether they would be happy for the patient to be referred to GFS in the event of a future acute deterioration where the GP was not available.	82% would happy for their resident to be referred to GFS again if they were unavailable
Patients and Family (response rate = 26%)	Communication from GFS around the referral	All respondents indicated that they were happy with the level of communication that they received
	Perceived appropriateness of the assessments and interventions that were undertaken and plans that were put in place	100% indicated support for the appropriateness of care provided and agreed that they were happy with the service provided by GFS and that they would be happy for their family member to be referred to GFS in the future if there was an acute deterioration in their condition

4. Conclusion

The Geriatric Flying Squad represents an innovative local approach that allows patients to be treated in a setting that they are familiar with and prefer in a cost-effective manner. SESLHD has maintained a strong evaluation focus to the program and the GFS has been shown to have resulted in significant cost and resource savings for the LHD. It has also allowed for new ways to raise revenue through billing Medicare for services provided. These resources have been able to be directed to alternative uses within the LHD. GPs, RNs and families of the patients have demonstrated a high degree for the program.

5. Appendices

5.1 General Practitioners Survey

Health
South Eastern Sydney
Local Health District

Geriatric Flying Squad feedback Form

Dear Dr.

Your patient Mr/Mrs/Ms _____

Was reviewed by the Geriatric Flying Squad and/or Nurse Practitioner Aged Care Team

Referred by: _____RACF:_____

On:_____

For: _____

Please see documentation of this episode in the resident's medical notes/eMR.

Following your review of the medical notes and the resident your feedback would be valued.

1. Do you feel this was an appropriate referral to GFS? YES NO

Comments: _____

2. Do you feel that appropriate assessments were undertaken? YES NO

Comments: _____

3. Do you feel that appropriate interventions / plan were put in place? YES NO

Comments: _____

4. Do you feel that there was appropriate communication regarding the episode of care with:
   a. Client/Family YES NO
   b. Staff YES NO
   c. Yourself YES NO

5. Would you be happy for this patient to be referred to GFS in the future, if there was an episode of acute deterioration that occurred and you were not available? YES NO

Additional Comments:

_____

_____

_____

_____

Would you like to discuss this episode of care with the Geriatrician? YES NO

Completed by S.Gerrard CNC, J.Jarick TNP, S. Frese TNP & S.Jain Geriatrician August 2014

5.2 Registered Nurse Survey

Health
South Eastern Sydney
Local Health District

Geriatric Flying Squad Feedback Form

Dear

Your resident Mr/Mrs/Ms _____,

Was reviewed by the Geriatric Flying Squad and/or Nurse Practitioner Aged Care Team

Referred by: _____

On: _____

For: _____

The episode was discussed with you at the time and we would value your feedback.

1. Was the referral process easy to complete? **YES** **NO**

Comments: _____

2. Was the response prompt and within the expected timeframe **YES** **NO**

Comments: _____

3. Do you feel that appropriate assessments of the client were undertaken? **YES** **NO**

Comments: _____

4. Did you understand the reasons for the interventions and plan that were put in place? **YES** **NO**

Comments: _____

5. Were you happy with the communication regarding the referral?
   a. Was the assessment outcome explained? **YES** **NO**
   b. Was the proposed treatment plan discussed and documented clearly? **YES** **NO**
   c. Were the resident's family advised of the episode and outcomes? **YES** **NO**

Comments: _____

6. In considering the time involved, did the episode?
   a. Take up too much of your time/more time than expected? **YES** **NO**
   b. Take up the expected amount of time? **YES** **NO**
   c. Increase your workload more than expected? **YES** **NO**
   d. Increase your workload as much as expected? **YES** **NO**
   e. Did not increase your workload **YES** **NO**

5.3 Patient/Family Survey

Health
NSW South Eastern Sydney Local Health District

Geriatric Flying Squad Feedback Form

Dear

Your relative Mr/Mrs/Ms _____

Was reviewed by the Geriatric Flying Squad and/or Nurse Practitioner Aged Care Team

Referred by: _____

On: _____

For: _____

The episode was discussed with you at the time and we would appreciate your feedback.

1. Was the reason for referral to GFS explained to you at the time? **YES** **NO**

Comments: _____

2. Do you feel that appropriate assessments were undertaken? **YES** **NO**

Comments: _____

3. Do you feel that appropriate interventions / plan were put in place? **YES** **NO**

Comments: _____

4. Were you happy with the communication regarding the referral:
   a. Was the assessment outcome explained? **YES** **NO**
   b. Were the options regarding in facility/hospital transfer explained? **YES** **NO**
   c. Was the proposed treatment plan discussed? **YES** **NO**

5. Were you happy with the service provided? **YES** **NO**

6. Would you be happy for your relative to be referred to GFS in future if there is an acute deterioration in their condition? **YES** **NO**

Additional Comments:

_____

_____

Would you like to further discuss this episode of care with the Geriatric Team? **YES** **NO**