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Cost-effectiveness of home-based care of febrile neutropenia in children with cancer

Running head: Cost-effectiveness of home-based FN care

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Abbreviations table

FN	febrile neutropenia
QALY	quality-adjusted life year
QoL	quality-of-life
LOS	length of stay
RCH	Royal Children's Hospital
CDR	clinical decision rule

HITH	hospital-in-the-home
SPOG	Swiss Paediatric Oncology Group
PICNICC	Australian Predicting Infectious ComplicatioNs in Children with Cancer
HSCT	hematopoietic stem cell transplant
GLM	Generalised linear models
CHU9D	Child Health Utility 9D
AQoL	Assessment of Quality of Life
ISPOR	International Society for Pharmacoeconomics and Outcomes Research

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Abstract

INTRODUCTION

Home-based treatment of febrile neutropenia (FN) in children with cancer with oral or intravenous antibiotics is safe and effective. There are limited data on the economic impact of this model of care. We evaluated the cost-effectiveness of implementing a FN program, incorporating home-based intravenous antibiotics for carefully selected patients, in a tertiary paediatric hospital.

METHODS

A decision analytic model was constructed to compare costs and outcomes of the home-based FN program, with usual in-hospital treatment with intravenous antibiotics. The program included a clinical decision rule to stratify patients by risk for severe infection and home-based eligibility criteria using disease, chemotherapy and patient-level factors. Health

outcomes (quality-of-life) and probabilities of FN risk classification and home-based eligibility were based on prospectively collected data between 2017 and 2019. Patient-level costs were extracted from hospital records. Cost-effectiveness was expressed as the incremental cost per quality-adjusted life year (QALY).

FINDINGS

The mean healthcare cost of home-based FN treatment in low-risk patients was A$7,765 per patient compared to A$20,396 for in-hospital treatment (mean difference A$12,632 (95% CI,12,496-12,767)). Overall, the home-based FN program was the dominant strategy, being more effective (0.0011 QALY (95% CI,0.0011-0.0012)) and less costly. Results of the model were most sensitive to proportion of children eligible for home-based care program.

CONCLUSION

Compared to in-hospital FN care, the home-based FN program is cost-effective, with savings arising from cheaper cost of caring for children at home. These savings could increase as more patients eligible for home-based care are included in the program.

INTRODUCTION

Febrile neutropenia (FN) is a common complication in children with cancer. In approximately half of all FN episodes, a serious infection or adverse outcome is not documented [1]. Risk stratification strategies are recommended to differentiate children with FN at low and high-risk for infection so treatment can be tailored accordingly [2]. There is a growing body of evidence that home-based care with oral or intravenous antibiotics in carefully selected children with low-risk FN is safe and effective [3, 4]. To date, much of the

focus has been on the clinical impact of this model, with limited data on the direct economic impacts on both the family and the healthcare system [5]. While safety remains paramount, the paucity of robust economic and quality-of-life (QoL) data for home-based FN care may, in part, explain the slow and inconsistent uptake of these treatment pathways.

Observational and economic modelling data suggest that a key driver of the direct healthcare costs of FN is in-hospital length of stay (LOS) [5]. While the total treatment costs of high-risk FN have been shown to be higher than low-risk FN in children, an Australian study found little differences between mean cost-per-day between these two groups [5]. The impact of oral or intravenous antibiotic strategies has also been explored in a Canadian study with very similar costs assigned to each group when delivered in the home, both of which were significantly cheaper than traditional in-hospital antibiotics [6]. Collectively, these data suggest that reducing in-hospital LOS for FN through the use of home-based treatment pathways will likely decrease costs of care, although the financial impact on families remains largely unknown.

In January 2018, a formal home-based FN program was implemented at the Royal Children's Hospital (RCH), Melbourne [7]. In the first 18 months, 22% of all episodes received home-based FN care with associated reductions in hospital median length of stay (LOS) (4.0 to 1.5 days, $p < 0.001$) as compared to a pre-implementation cohort, and a total of 291 in-hospital bed days saved [7]. Detailed clinical assessment indicated home-based FN care was safe with few readmissions (12%), no increase in severe infections and no adverse events including severe sepsis, intensive care admission or death [7]. The home-based FN program was initially intended for patients identified as low-risk, however, a small proportion of FN episodes classified as high-risk were considered appropriate for the program by their treating clinician and subsequently transferred to home to complete treatment. In this study, we evaluated the

cost, benefits and cost-effectiveness of implementing this novel pathway in the same cohort of children reflecting the real-world application of the program.

METHODS

Intervention

As part of the home-based FN program, a care pathway was developed incorporating a locally validated clinical decision rule (CDR) and an assessment of eligibility for early transfer to hospital-in-the-home (HITH). The CDR, derived by the Swiss Paediatric Oncology Group (SPOG), was used to stratify patients into two groups (low- and high-risk for infection or adverse outcome) and included four clinical variables (chemotherapy more intensive than ALL maintenance (score 4), haemoglobin >90g/L (score 5), white cell count <3.0 cells/m^3 (score 3) and platelet count <50g/L (score 3)) [5, 8]. A score of less than 9 indicates low-risk for adverse event defined as a serious medical complication as a result of infection, microbiologically defined infection or radiologically confirmed pneumonia [8]. Following risk stratification, disease-, chemotherapy- and patient-level factors were applied to identify low-risk FN patients eligible for home-based care [6]. Eligible patients were transferred to HITH to complete FN treatment after an overnight period of observation. Patients and their families were provided with education and written information on when and how to contact the hospital if the child became unwell. Patients were reviewed daily at home by a HITH nurse for administration of intravenous antibiotics (piperacillin-tazobactam via infuser) and clinical assessment until eligible for discharge (afebrile and evidence of bone marrow recovery as judged by treating clinician). Implementation methodology for the home-based FN program and detailed description of the intervention and clinical outcomes are reported elsewhere [7].

Patients

All children (age ≤18 years) with cancer on active treatment and outpatient onset fever (temperature ≥38°C) and neutropenia (absolute neutrophil count <1000/mm³) were screened for inclusion on the home-based FN program. Children with hematopoietic stem cell transplant (HSCT) within 3 months or who developed FN on concurrent treatment antibiotics or as an inpatient were excluded. The home-based FN program was informed by the Australian Predicting Infectious ComplicatioNs in Children with Cancer (PICNICC) study [1], a multisite, prospective observational study.

Economic and prospectively collected clinical data included in this study were taken from two cohorts; (i) Australian PICNICC study cohort restricted to episodes managed at RCH (11/2016-12/2017 – period prior to implementation of the FN program) [1], and (ii) the RCH home-based FN program implementation study (01/2018-06/2019) [7]. Across both cohorts, 304 and 291 outpatient onset FN episodes occurred, respectively. These episodes were stratified into low- or high-risk FN risk using the CDR and by their HITH (home-based) eligibility (Appendix 1). In the RCH home-based FN program implementation cohort, data were not collected on home-based eligibility for 138 high-risk FN episodes. A further 11 episodes were excluded, 6 with multiple FN episodes assigned to a single separation and 5 considered to be atypical outliers unhelpful to the comparison between groups (top 1% based on length of stay). A total of 444 FN episodes (PICNICC cohort, n=297; Implementation cohort, n=147) across 201 children were considered for the costing analysis and were used to inform the economic model.

Analysis of costs

Patient-level health-care costs were extracted from the hospital's administrative records which describes the total cost and LOS for each separation. Costs were adjusted to reflect those relevant to the FN episode by multiplying the mean daily cost with duration of LOS relevant to the FN episode. To overcome variations in costs that may relate to practice and costing differences over time, all patient-level costs were pooled to estimate a standardised mean daily cost.

To estimate costs incurred by the patients' families, we used previously published unit costs incurred during treatment and days absent from paid or unpaid work from parents or carers of children who underwent antibiotic treatment at home or in hospital [9]. These costs were generated from the same tertiary hospital.

Generalised linear models (GLM) were used to analyse duration of LOS and costs. The appropriate family of distribution and link for the models were determined using a combination of statistical tests including the modified Park test, Pearson correlation, Pregibon and modified Homer and Lemeshow tests [10, 11]. Age, sex, cancer type, duration from cancer diagnosis, previous HSCT and chemotherapy intensity (more or less than ALL maintenance) were included in the models to control for possible baseline imbalances. Duration of LOS, costs and the differences between home-based and in-hospital treatment cohorts were estimated and presented for each subgroup. To account for sampling uncertainty, we performed bootstrapping with 1000 replications using the recycled predictions method [11].

Quality-of-life outcomes

In both cohorts, Child Health Utility 9D (CHU9D) questionnaires were used to capture QoL at the onset of the FN episode and day 7 [12, 13]. For children aged <6 years, parents completed the questionnaire on behalf of the child and for > 6 years, the child completed it themselves.

Parents or carers QoL were also captured at the same time points using the Assessment of Quality of Life (AQoL-6D) questionnaire [14, 15]. Responses from the questionnaires are scored as utility values using published algorithms [16, 17]. Completed QoL questionnaires were available from 54 parents and 35 children across both cohorts. As completion rate was low, responses were pooled and grouped into broader subgroups (high and low risk) for analysis. Random effects regression models were used to analyse utility values and control for baseline characteristics.

Modelled cost-effectiveness analysis

A decision analytic model was constructed to compare the costs, outcomes and cost-effectiveness of the home-based FN program with in-hospital care. A decision tree developed using TreeAge Pro 2021 (TreeAge Software Williamstown, MA) was used to model the decision paths (expected sequence of events) before and after implementation of the home-based FN program (Fig. 1). The model applied data from the clinical studies (probabilities of FN risk category by CDR and HITH eligibility) and results from the cost and QoL analyses. The probabilities and costs for high-risk groups were standardised to ensure consistency and reduce the imbalance due to lack of complete data (from the RCH implementation study). All patients were followed up from onset of FN until time of discharge from hospital or HITH. The cost of a dedicated nurse consultant (0.2 full-time equivalent) leading the program (coordinate clinical meetings, updating of electronic medical records, staff and patient education, identification of suitable patients and ensuring appropriate follow-up of patients) was also included in the evaluation (see Appendix 2 for costing details, Appendices 3 and 4 include a full list of model inputs).

The cost-effectiveness analysis was conducted according to established methodological guidelines [18], and reported from health care and societal (patients' family) perspectives. All

costs are expressed in 2019 Australian dollars adjusted for inflation using the Australian Consumer Price Index [19]. Quality-adjusted life years (QALYs) were calculated by multiplying the child's utility by the duration of LOS. The cost-effectiveness results were presented as a cost per QALY gained. Incremental cost-effectiveness ratios were calculated to compare the home-based FN program with usual in-hospital treatment. This was calculated as the mean difference in costs divided by the difference in outcomes (QALYs). Reporting follows the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) consolidated health economic evaluation reporting standards guideline [20].

Sensitivity analysis

To account for parameter uncertainty, probabilistic sensitivity analysis (PSA) was conducted by running 10,000 simulations for the two cohorts. A series of one-way sensitivity analyses were also undertaken to determine key drivers and to explore the assumptions made and data sources used in the model. These analyses included doubling the program cost, varying the proportion of patients assessed low risk, proportion of eligible patients discharged to home-based care and alternative sources of utilities. Threshold analyses were also performed on key drivers of the model to establish the minimum/maximum parameters for the program to remain cost-effective at a threshold of A$50,000 per QALY gained.

RESULTS

Demographic data on the 444 FN episodes included in this analysis are available in Table 1. The differences in proportion of children receiving high- versus low-intensity chemotherapy, with previous HSCT and type of cancer diagnosis are reflective of the CDR and HITH eligibility criteria.

Cost analysis

The mean health care cost of managing FN at home in children identified as low-risk was A$7,765 per patient compared to A$20,396 for the in-hospital treatment cohort (mean difference A$12,632 (95% CI, 12,496-12,767)). In children identified as high-risk but who fulfilled home-based eligibility criteria and were subsequently transferred to the program, the mean health care cost was A$13,739 per patient compared to AUD$21,370 for the in-hospital treatment cohort (mean difference A$7,632 (95% CI, 7,402-7,861)). Similar trends were also observed for mean family costs (Table 2). On average, patients who received home-based FN care had a longer total LOS (in-hospital and HITH) than those who remained in hospital; among low-risk patients, this was 1.13 days longer (95% CI, 1.07-1.20) and in high-risk patients, 2.04 days longer (95% CI, 1.93-2.14). The full results are reported in Appendix 5 and were used as inputs into the economic model.

Quality-of-life outcomes

Overall, patients managed through home-based care and their parents or carers reported better QoL (higher utility values) compared to patients treated in-hospital. Although based on a small sample size, FN management through the program (i.e., from Day 0 to Day 7) did not have negative impacts on patient QoL outcomes (i.e., no worse than patients who remained in-hospital). The utility values from CHU9D and AQoL at baseline and day 7 estimated from separate random effects model are presented in Appendix 6. These results and those from the cost analysis were used to inform the economic model.

Modelled cost-effectiveness

From the Australian health care system perspective, the care pathway with the home-based FN program was the dominant strategy, meaning more effective (0.0011 QALY (95% CI, 0.0011-0.0012)) and less expensive (A$1,382 (95% CI, 1,238-1,527). From a societal

perspective, the program was also the dominant strategy, being more effective (0.0025 QALY (95% CI, 0.0024-0.0027)) and less expensive (A$1,565 (95% CI, 1,419-1,711). The results of the PSA are presented on a cost-effectiveness plane (Fig. 2) and they show that for 65% (blue – health care perspective) and 66% (red – societal) of the simulations the home-based FN program is dominant compared to in-hospital treatment. A detailed breakdown of the cost-effectiveness results is presented in Appendix 7.

The cost-effectiveness results remained robust with the home-based FN program remaining the dominant strategy under most analyses performed (Appendix 8). The economic model was most sensitive to the proportion of low-risk patients eligible for the home-based care and costs of managing home-based care patients. For the program to remain cost-effective, the proportion of low-risk patients assessed as eligible to receive home-based FN (HITH eligible) care would need to remain above 37% and those actually transferred home to the program would need to remain above 11%. Fig. 3 shows that the home-based FN program is a cost-saving strategy if the cost of managing low-risk patients on the program does not exceed $17,184 (121% increase from current cost). This increases to A$17,550 at a willingness-to-pay threshold of $50,000 per QALY.

DISCUSSION

This comprehensive economic evaluation of a paediatric home-based FN program extends our understanding of the potential impact of home-based care pathways for children with cancer. Our data show that the program is cost-effective from both the healthcare and societal perspectives. Although managing children at home increased the duration of care, this model of care substantially reduced in-hospital LOS translating to significantly lower healthcare costs of both low-risk and high-risk groups, as compared to standard inpatient care. Importantly, children were effectively and safely managed on the program without adverse

impacts on patient QoL outcomes and clinical outcomes including mortality [7]. By taking into consideration the additional human resources required to implement and support this program, such as nurse specialists, we have also shown that it remains cost effective despite these costs.

The results of the economic evaluation were robust under PSA and all deterministic sensitivity analyses. Although the home-based FN program remained the dominant strategy when tested over a wide range of plausible values, we identified two main drivers of the model which could change the preferred strategy, namely proportion of patients identified as low risk and assessed to be eligible for HITH and the cost of managing low-risk HITH patients. For the program to remain cost-effective at a A$50,000/QALY threshold, the cost of managing low-risk HITH patients would have to increase substantially (more than a 2-fold increase, Fig. 3) and the proportion of low-risk patients eligible for HITH should remain above 36%. The need to improve the proportion of patients that are risk-assessed was identified as a key area for improvement during the evaluation of the program [7]. Proposed solutions to avoid missed opportunities for home-based FN care include use of electronic medical alert for patient identification and the evaluation of its impact. Additionally, the identification of ways to optimise hospital and HITH length of stay on the program are also underway.

Although the FN program was initially intended for patients identified as low-risk, 19 FN episodes classified as high-risk were considered appropriate for the program by their treating clinician and subsequently transferred to HITH to complete treatment. Although these numbers were small, our evaluation took this into account to reflect the real-world application of the program. The feasibility of safely treating higher-risk patients through the program, together with increasing clinician acceptance in managing cancer patients at home [21], has

prompted a program update. Currently all children with FN, irrespective of underlying FN risk status, may be considered for home-based care provided that HITH-eligibility criteria are fulfilled, and a minimum in-hospital observation observed. In patients with a low risk score, this may be as little as 4 hours in-hospital observation. Considering the high cost of managing high-risk FN patients in-hospital, increasing the number of eligible patients sent home would further improve the incremental cost between the two strategies, favouring the home-based care program. Evaluation of this revised approach is underway (Australian New Zealand Clinical Trials Registry 12616001440415).

Our analysis leverages on prospectively collected data from clinical studies involving the development, implementation and evaluation of the home-based FN program [7] and takes into consideration both the healthcare system and families' perspectives. Health systems are now moving towards a value-based healthcare model which aims to provide care at a lower cost without compromising patient outcomes [22, 23]. The current home-based FN program meets this objective by providing care that is cheaper, less intrusive and burdensome for both patients and their families, and without adverse impact on patient outcomes [7]. However, despite the growing body of evidence for safety and, now cost-effectiveness of home-based FN care in both adults and children, change of practice has been slow, with clinician hesitancy identified as a major barrier [24-28]. This home-based FN program is unique as it included an additional "safety-net" step and an overnight period of observation, beyond just risk stratification, with home-based care criteria that are easily interpreted by clinicians (including those without dedicated oncology training). This ensured that patients were not inappropriately transferred home despite being assessed as low-risk and may be an important factor in improving confidence in the program. It is recognised there are alternative approaches of managing FN at home, including oral antibiotics or discharge without an

overnight period of observation, which may be more cost-effective relative to commencing care in hospital.[6] Despite this, the current program has been shown to be a cost-effective approach, and ongoing research to optimise antibiotic choice and in-hospital and HITH length of stay may further improve the cost-effectiveness of the program.

Patient and family preferences are also critical to informing these new models of care. Caring for children with cancer can have considerable social, financial and emotional impact on parents [29] and the option for home-based care can potentially alleviate these demands. Paediatric studies have shown that patients and families often value the comfort, familiarity of home environment, and reduced disruption to family life that comes with home-based care and, given the opportunity, tend to prefer this model [30-33]. A recent survey of parents of children with cancer and FN similarly identified strong themes of perceived wellbeing, and reduced impact on the family due to home-base care [21]. However, these qualitative data are captured infrequently, more attention should be directed towards routinely embedding QoL measures in paediatric research as well as to understand the most effective method of obtaining reliable information from children and their families. By incorporating a broader perspective in our analysis, we are able to show the value of the home-based FN program from the families' viewpoint.

Although this is one of the most comprehensive economic evaluations of a paediatric home-based FN program, the evaluation was conducted over a short time period (duration of FN management), therefore, the longer-term economic and QoL impact is uncertain. Interpretation of the QoL data is also limited by the poor response rate for these questionnaires. Challenges in determining health utilities in children are not new [6, 34], and are often limited by lack of child-centred approaches for obtaining reliable information from children and potential systematic differences in responses from parent proxy and child self-

report. Despite this, we tested the robustness of our results using previously published utility values from our centre [9] and the home-based FN program remained the dominant strategy. We acknowledge the limitations in applying unit costs sourced from a study comparing home-based care and in-hospital treatment for children with cellulitis [9], however this remains the best available source of unit costs to estimate costs incurred by families with children undergoing treatment at home and in hospital in settings similar to the current study. Managing children with cancer and FN is generally more complex than with otherwise well children with cellulitis, with parents or carers of oncology patients likely to spend more time caring for their child. Thus, the costs we include may represent a lower limit of the per diem cost faced by families and carers. Children managed under the home-based care program did have a longer total duration of treatment (overall LOS) with more days spent at home than in the hospital as compared to patients managed entirely in hospital, [7] and this was taken into account and reflected in our cost estimates. It is also unclear if the current evaluation and the cost-effectiveness results can be generalised to other settings as data used to inform the economic model were from a single institution. However, inputs used were based on prospectively collected data from the pragmatic implementation of the program, therefore, are more likely to reflect a real-world setting. As more data are collected from an ongoing national low-risk FN study, the economic model can be re-purposed to assess the cost-effectiveness of the program. While the number of home-based FN presentations was relatively low over an 18-month period (34%, 43/128), this proportion exceeds the 11% threshold for cost-effectiveness identified in this study.

Compared to in-hospital FN care, a home-based FN program is cost-effective, with savings arising from the cheaper cost of caring for children at home from both the healthcare system and families' perspectives. The potential cost-savings (and bed-days saved) from the

implementation of the program without adverse impact on patient outcomes provides a strong case to justify the implementation as well as evidence to support the continuity of the program. It also demonstrates the potential for significant improvement in efficient use of resources for the health system if the home-based program continues to deliver outcomes that are as safe and effective as in-hospital care.

CONFLICT OF INTEREST STATEMENT

All authors have nothing to disclose.

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DATA AVAILABILITY STATEMENT

The data underlying the results of this study are only available upon request, because they contain potentially sensitive information. Interested researchers can contact the corresponding author.

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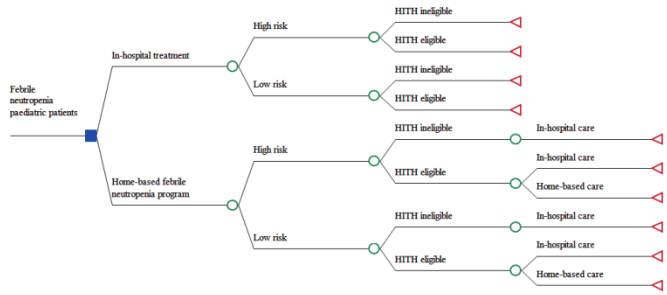
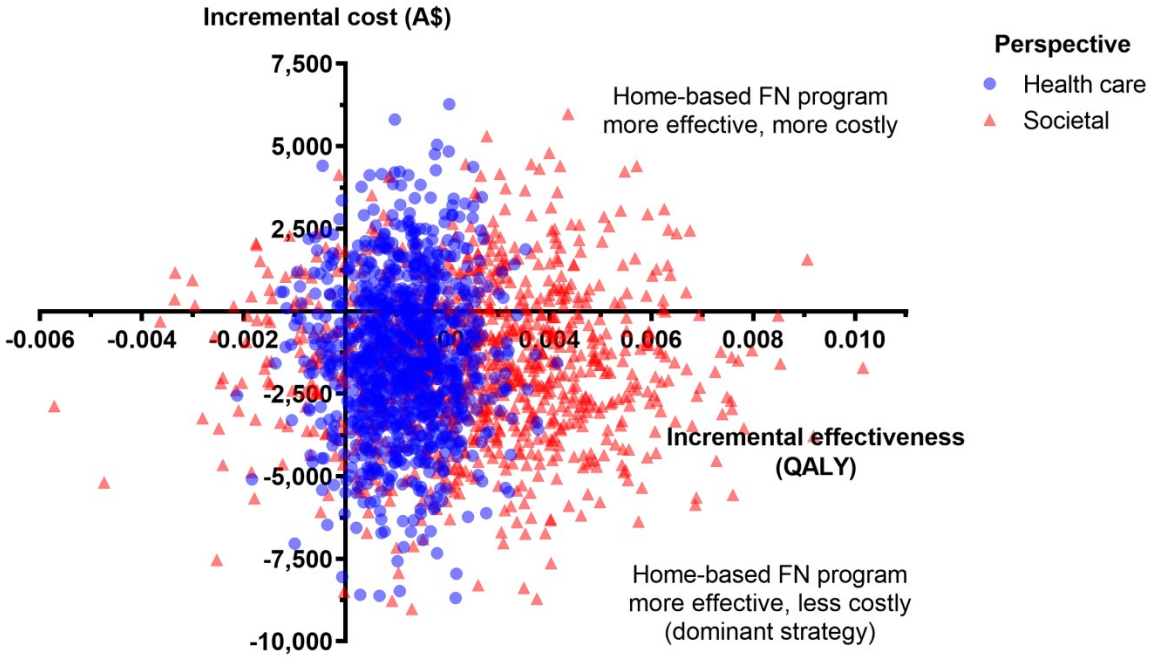
FIGURE 1: Decision tree (risk stratification using the CDR and by HITH eligibility)



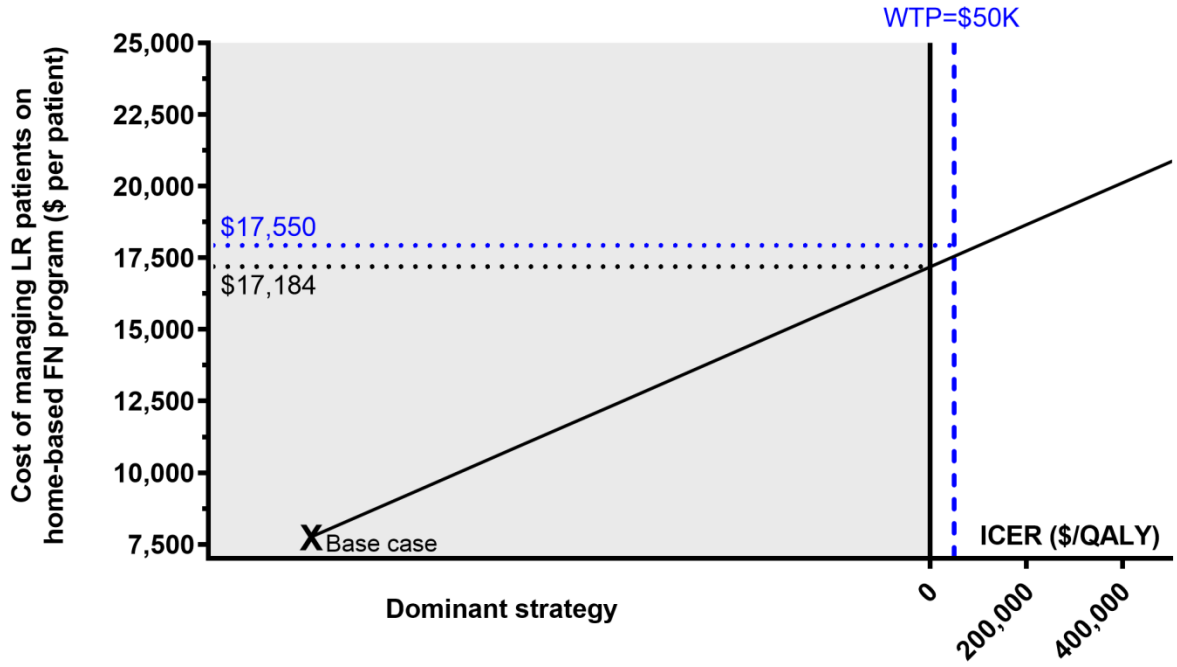
Abbreviation: HITH, hospital-in-the-home

FIGURE 2: Cost-effectiveness results



Abbreviation: A$, Australian dollars; FN, febrile neutropenia; QALY, quality-adjusted life years

FIGURE 3: Impact of cost of managing low-risk patients on cost-effectiveness results



Abbreviation: A$, Australian dollars; FN, febrile neutropenia; LR, low-risk; ICER; incremental cost-effectiveness ratio; QALY, quality-adjusted life years; WTP, willingness-to-pay

TABLE 1: Baseline characteristics of FN episodes included in the costing and cost-effectiveness analyses analysis stratified by low and high-risk status using CDR and HITH eligibility.

Risk assessment by CDR	**Low-risk (N=247)**			**High-risk (N=197)**		
Eligibility for HITH	**No**	**Yes**	**p-value[c]**	**No**	**Yes**	**p-value[c]**
N (%)	103 (41.70)	144 (58.3)		55 (27.92)	142 (72.08)	
Age years, mean (SD)	6.81 (4.48)	6.82 (4.07)	0.989	6.83 (5.16)	7.54 (5.15)	0.382
Female, n (%)	48 (46.60)	78 (54.17)	0.241	29 (52.73)	54 (38.03)	0.061
Cancer type, n (%)			0.098			0.005
Solid	40 (38.83)	70 (48.61)		24 (43.64)	91 (64.08)	
Leukemia	54 (52.43)	59 (40.97)		21 (38.18)	39 (27.46)	
Lymphoma	2 (1.94)	9 (6.25)		9 (16.36)	6 (4.23)	
Other	7 (6.8)	6 (4.17)		1 (1.82)	6 (4.23)	

Previous HSCT [a], n (%)	1 (0.97)	1 (0.69)	0.811	3 (5.45)	1 (0.7)	0.034
Days since cancer diagnosis, mean (SD)	276.77 (349.1)	236.45 (225.62)	0.272	311.64 (413.6)	158.73 (182.13)	<0.001
Days since last chemo, mean (SD)	6.14 (6.53)	7.36 (5.95)	0.128	6.13 (3.72)	5.76 (3.73)	0.527
Chemo intensity [b], n (%)			0.005			0.533
High	84 (81.55)	94 (65.28)		55 (100)	141 (99.3)	
Low	19 (18.45)	50 (34.72)		0 (0)	1 (0.7)	
Cause of fever, n (%)			<0.001			<0.001
Bacteriaemia	16 (15.69)	5 (3.47)		14 (25.45)	8 (5.63)	
MDI	20 (19.61)	16 (11.11)		12 (21.82)	21 (14.79)	
CDI	18 (17.65)	11 (7.64)		12 (21.82)	8 (5.63)	
Cause unknown	48 (47.06)	112 (77.78)		17 (30.91)	105 (73.94)	
ICU admission, n (%)	2 (1.94)	0 (0)	0.093	2 (3.65)	0 (0)	0.022
Days in ICU, mean (SD)	1.42 (0.91)	-		3.4 (0.26)	-	

Abbreviation: CDI, clinically defined infection; CDR, clinical decision rule; chemo, chemotherapy; FN, febrile neutropenia; HSCT, hematopoietic stem cell transplant; HITH, hospital-in-the-home; ICU, intensive care unit; MDI, microbiologically defined infection; SD, standard deviation

[a] Allogeneic or autologous

[b] 'High' intensity defined a chemotherapy more intensive than ALL maintenance and 'Low' defined as ALL maintenance therapy or equivalent.

[c] Test for difference between patients who were eligible for hospital-in-the-home and those who were not

TABLE 2: Comparison of mean costs (A$) per FN episode between patients on home-based care FN program and in-hospital treatment

	Home-based	**In-hospital**	**Difference (95%CI) [a]**

	FN program		treatment		
	Mean	**SE**	**Mean**	**SE**	
Health care costs (A$)					
Low risk FN episode	7,765	826	20,396	2,272	-12,632 (-12,767, -12,496)
High risk FN episode	13,739	3,023	21,370	2,399	-7,632 (-7,861, -7,402)
Family cost (A$)					
Low risk FN episode	1,188	121	2,180	242	-992 (-1,006, -977)
High risk FN episode	1,835	363	2,495	280	-660 (-687, -633)

Abbreviation: A$, Australian dollars; CI, confidence interval; FN, febrile neutropenia; SE, standard error

[a] Generated from bootstrapping with 1000 replications using the recycled prediction method [11]

Risk assessment by CDR	**Low-risk (N=247)**			**High-risk (N=197)**		
Eligibility for HITH	**No**	**Yes**	**p-value[c]**	**No**	**Yes**	**p-value[c]**
N (%)	103 (41.70)	144 (58.3)		55 (27.92)	142 (72.08)	
Age years, mean (SD)	6.81 (4.48)	6.82 (4.07)	0.989	6.83 (5.16)	7.54 (5.15)	0.382
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Days in ICU, mean (SD)	1.42 (0.91)	-		3.4 (0.26)	-	

	Home-based FN program		**In-hospital treatment**		**Difference (95%CI) [a]**
	Mean	**SE**	**Mean**	**SE**	
Health care costs (A$)					
Low risk FN episode	7,765	826	20,396	2,272	-12,632 (-12,767, -12,496)
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