DRAFT for Discussion

Kurt Salmon

Demand Analysis Progress Update

Board of Directors

June 11th, 2016

A place of respite for kids and families
Crescent Cove

DRAFT for Discussion

A place of respite for kids and families
Crescent Cove

Agenda

- Quick recap of timeline and highlights from last Board Meeting (5 mins)
- Review data findings (10 mins)
- Demand model and sensitivities (10 mins)
- Conclusions, recommendations and next steps (15 mins)

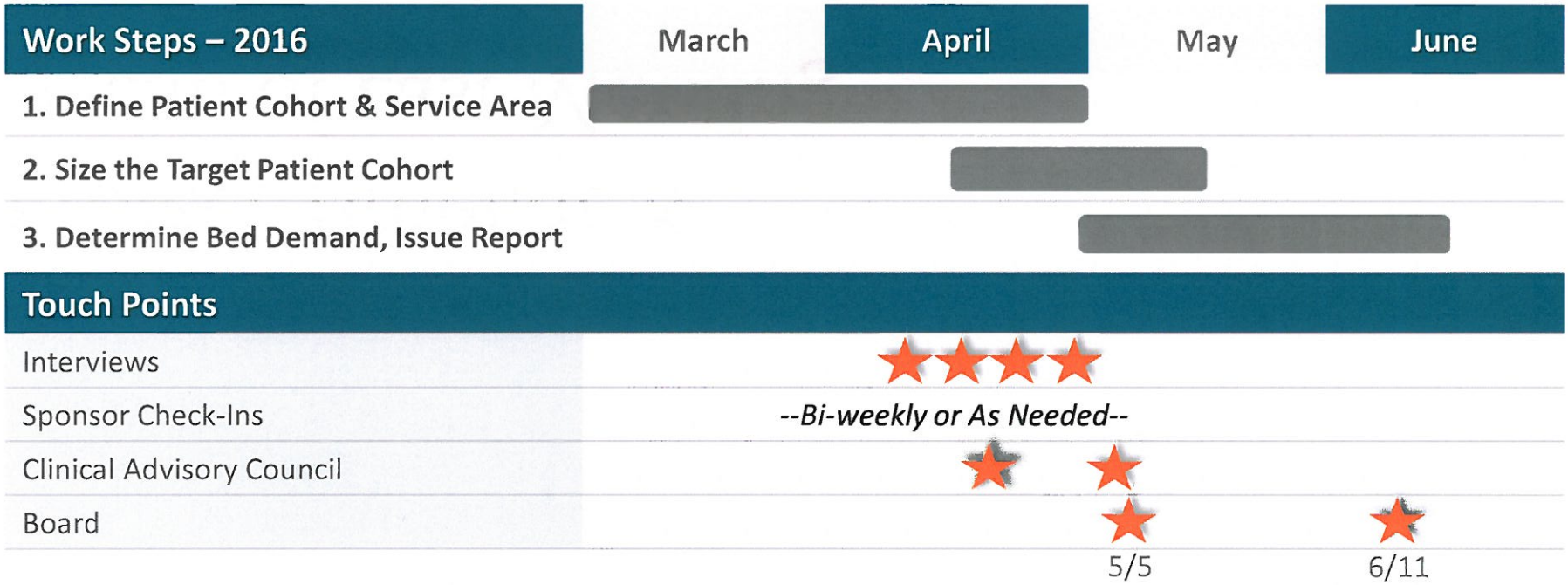
Project Timeline &
Recap of Last Meeting

DRAFT for Discussion

A place of respite for kids and families
Crescent Cove

Project Timeline

- Demand model is complete based on research and data collection
- Today is the last scheduled touch point with the Board to share model outcomes and final recommendations



Recap of Last Board Meeting

Key Research & Interview Findings

- There is a **strong rationale for a hospice and respite home** in the Twin Cities metro area to address the gap in services for pediatric patients with life limiting and/or life threatening conditions; hospital environment generally considered challenging for supporting end of life care
- Great **variation in prevalence** is seen depending source and geography, with most information coming from the UK (10 – 44.6 per 10,000 in population)
- **Different homes supporting different age groups**; some have specific **diagnoses** that are supported, while others are more wide ranging
- Most houses investigated as part of the study support a **higher mix of respite patients** and stays than hospice
- Significant **variability in length of stay between patients**, though most homes have **limits on respite stay duration** per visit and per year
- There is **limited to no reimbursement for pediatric hospice and respite care today**, making supporting such care in the long term challenging
- Most homes face **significant challenges associated with seasonality** (e.g., greater demand on week ends, in the summer and holiday months for families wishing to reserve space for respite), impacting cost of care associated with the facility and staffing
- **Community partners are important** for referrals and initial outreach; however, most recommended that Crescent Cove remain independent and not align with any single hospital or health system

Data Findings

Data Findings

Data Request Update

- The current definition of patients with LLC/LTC is available in ICD-10 codes, while most hospitals still pull data using ICD-9 codes, limiting accurate identification of target patients
- Blinded data received from Gillette and Minnesota Children's limited the analysis that could be performed

Data Source	Data Type	Status
Gillette Children's Hospital	Pediatric Palliative Care Patients	Received limited 2013-2015 data set w/o patient ID; unable to track count; ICD 9 codes
Minnesota Children's Hospital	Pediatric Palliative Care Patient Data	Received data; no patient ID; unable to track count; ICD 9 codes
University of Minnesota Masonic Children's Hospital	Pediatric Palliative Care Patient Data	Awaiting data; expected by 7/1/2016
Hennepin County Medical Center	Pediatric Palliative Care Patient Data	Very limited patient count (~3-6)
Department of Human Services	Pediatric State Medicaid Data	Awaiting Data
Interview of Other Similar Facilities	Pediatric Respite and Hospice Care Stats (Admissions, LOS and Seasonality statistics)	Partial data received from George Mark, Ryan House, Canuck Place based on interviews
Minnesota Hospital Association	Pediatric Palliative Care Patient Data	In process; ICD 9 codes converted to ICD 10 codes for request submission

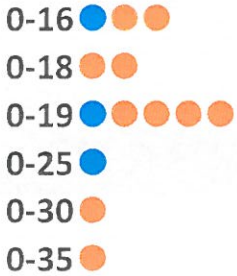
Data Findings

Summary Data Findings

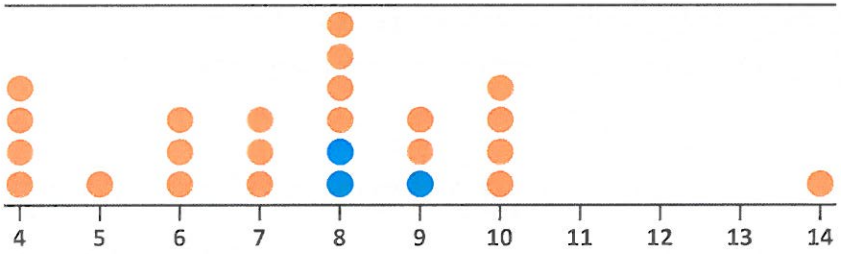
In the absence of readily available patient level data from hospitals in the Twin Cities market, we researched pediatric palliative, hospice and respite care, spanning 20 comparable pediatric homes in the UK, Canada and North America, including the ones we interviewed (Canuck Place, Ryan House, George Mark, and Martin House).

FACILITIES and LOCATIONS

PATIENT COHORT AGE RANGES (from 13 organizations)

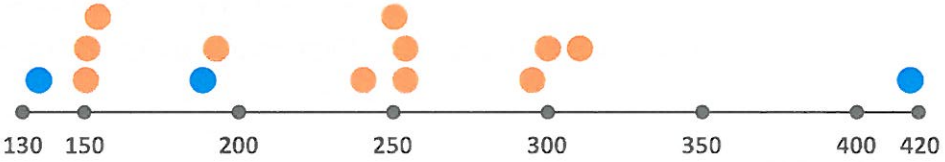


NUMBER OF BEDS (from 25 facilities across 15 organizations)



North American Location UK Location

ADMISSIONS RANGE (from 14 facilities across 7 organizations)



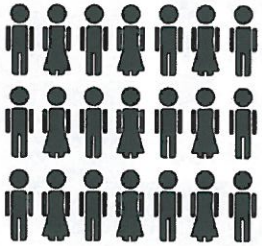
Data Findings

Summary Data Findings – North America

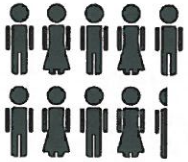
PEDIATRIC POPULATION (In 100,000)

PHOENIX, AZ

SAN FRANCISCO, CA

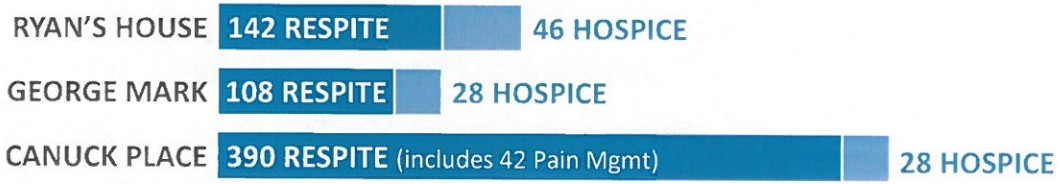


VANCOUVER, BC



San Francisco is the largest market with the least admissions, while Vancouver is the smallest market with the most admissions and highest occupancy rates, indicating that success is determined by more than population and demand.

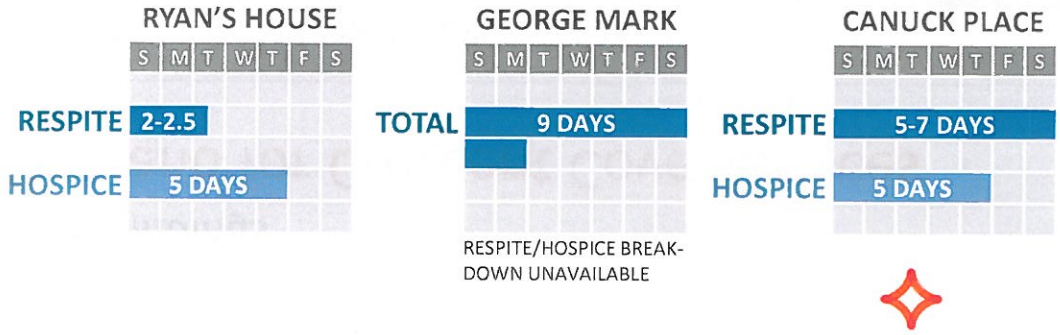
ADMISSIONS



AVERAGE DAILY CENSUS (Estimated based on ALOS)

RYAN'S HOUSE	GEORGE MARK	CANUCK PLACE
1.6	3.4	5.7

AVERAGE LENGTH OF STAY (ALOS)



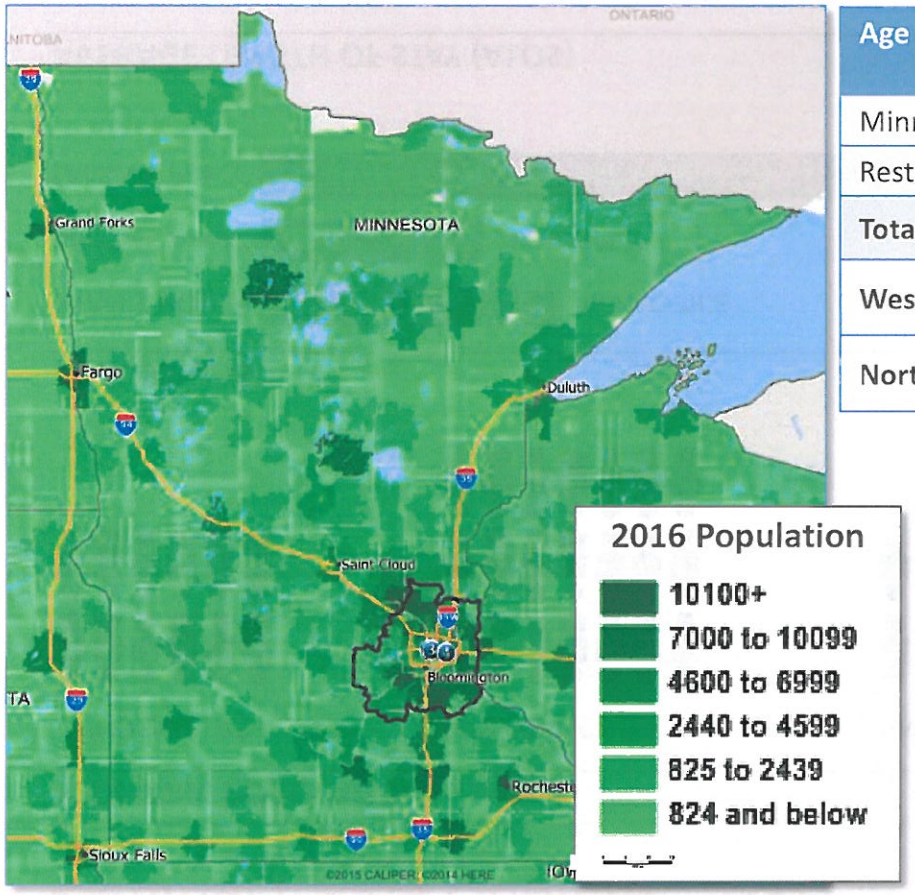
OCCUPANCY (Estimated based on ALOS)

RYAN'S HOUSE	GEORGE MARK	CANUCK PLACE
		
20%	42%	64%

Data Findings

Demand for Crescent Cove Services

Map of 2016 Age 0-21 Population



Age 0-21 Population	2016	2021 Projected	2016-2021 CAGR
Minneapolis-St Paul MSA	875,777	907,124	0.7%
Rest of Minnesota	716,477	720,216	0.1%
Total State 0-21 Population	**1,592,254**	**1,627,340**	**0.4%**
Western Wisconsin[1]	**219,878**	**218,585**	**-0.1%**
Northern Iowa[2]	**57,725**	**56,853**	**-0.3%**

Target Population
~900,000 Kids
Within Twin Cities MSA

✖

Life Limiting Conditions
10-44 per 10,000
European Prevalence Rates

Estimated Demand for Patients Requiring Respite and Palliative Care

~900 – 4,000 Patients

1. Includes Barron, Buffalo, Burnett, Chippewa, Crawford, Douglas, Dunn, Eau Claire, Jackson, La Crosse, Monroe, Pepin, Pierce, Polk, Saint Croix, Trempealeau, and Vernon Counties
2. Includes Allamakee, Cerro Gordo, Chickasaw, Dickinson, Emmet, Floyd, Hancock, Howard, Kossuth, Lyon, Mitchell, Osceola, Winnebago, Winneshiek, and Worth Counties

Source: Claritas, AHA Guide

Demand Model

Demand Model

Construct & Assumptions

Below are important considerations for the development and review of the demand model:

- Despite the absence of detailed patient specific data from Twin Cities providers, the demand model is directionally correct and does indicate that there is demand for a Crescent Cove facility
- Assumptions around market share and average length of stay (ALOS) are based on alike facilities
- While other alike facilities may serve as a proxy, each facility serves different demographics and healthcare landscapes, so it is difficult to understand how much is unique to the facility versus what is normal for pediatric hospices; shifts in these assumptions could shift the need for beds dramatically
- Based on the patient type, mix and potential census, a 60% occupancy rate is assumed to account for the variability in demand and LOS, as well as the high patient acuity and complexity of care expected
- Demand is temporal and will change over time with adjustments in population, demographics, socio-economics, health care advancements and how well Crescent Cove is received in the community

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Demand Model

Baseline Assumptions & Outputs

This construct yields ***one potential scenario*** based on collected data and informed assumptions; changes in any of these assumptions would impact the calculated bed need.

	Model Input	Respite	Hospice
Patient Cohort	**Target Population**	Minneapolis Twin Cities Area: **907,124**	Minneapolis Twin Cities Area: **907,124**
	Prevalence Rates **Mortality Data** **Palliative Care Patient Panel**	10 per 10,000 - 44.6 per 10,000 **Average: 26.8 per 10,000**	**~3.4%** of children with LLC/LTC[1]
Share	**Market Size**	900K x (26.8 per 10,000) = **2,431**	900K x (26.8 per 10,000) x 3.4% = **83**
	Market Penetration / Capture	**5 - 10%** 121 – 241 patients	**10 - 20%** 8.3 – 16.5 patients
	In-migration	**15%** 21 – 43 patients	**0%**
Census	**Estimated Crescent Cove Patients**	**143 – 286** per year	**8.3 – 16.5** per year
	Average Length of Stay	**7 days**	**5 days**
	Patient Days	1,001 – 2,002 days/yr **2.7 – 5.5 ADC**	41 – 82 days/yr **.11 – .23 ADC**
Beds	**Subtotal (60% Occupancy)**	**4.5 – 9.2 beds**	**.18 – .38 beds**
	TOTAL (60% Occupancy)	**4.7 – 9.6 beds**	

1. Based on data from a major national payor, over 2013-2015 for US patients who filed claims

Demand Model

Hospice Demand as Indicated by MN Mortality Data

- Based on the Minnesota mortality data, there are 416 deaths that occurred for children under the age of 19, due to varying disease conditions and causes that were not external (i.e., accidents, self-harm)
- Depending on the applicable disease conditions, the number of patients who "qualify" for hospice care, and the capture rate for Crescent Cove, hospice demand is likely to be +/- 1 bed

Disease Condition	Deaths 0-19
Infectious & Parasitic Disease	13
Neoplasms	29
Disease of the Blood & Blood Forming Organs	5
Endocrine, Nutritional & Metabolic Disease & Immunity Disorders	13
Disease of the Nervous System	19
Disease of the Circulatory System	20
Disease of the Digestive System	10
Disease of the Musculoskeletal System & Connective Tissue	1
Certain Conditions Originating in the Perinatal Period	162
Congenital Malformations, Deformations, & Chromosomal Abnormalities	112
Symptoms, Signs and Abnormal Clinical & Lab Findings	32
Total	**416**

Source: 2013 Minnesota Mortality Data Department of Health

Demand Model

Sensitivity Analysis

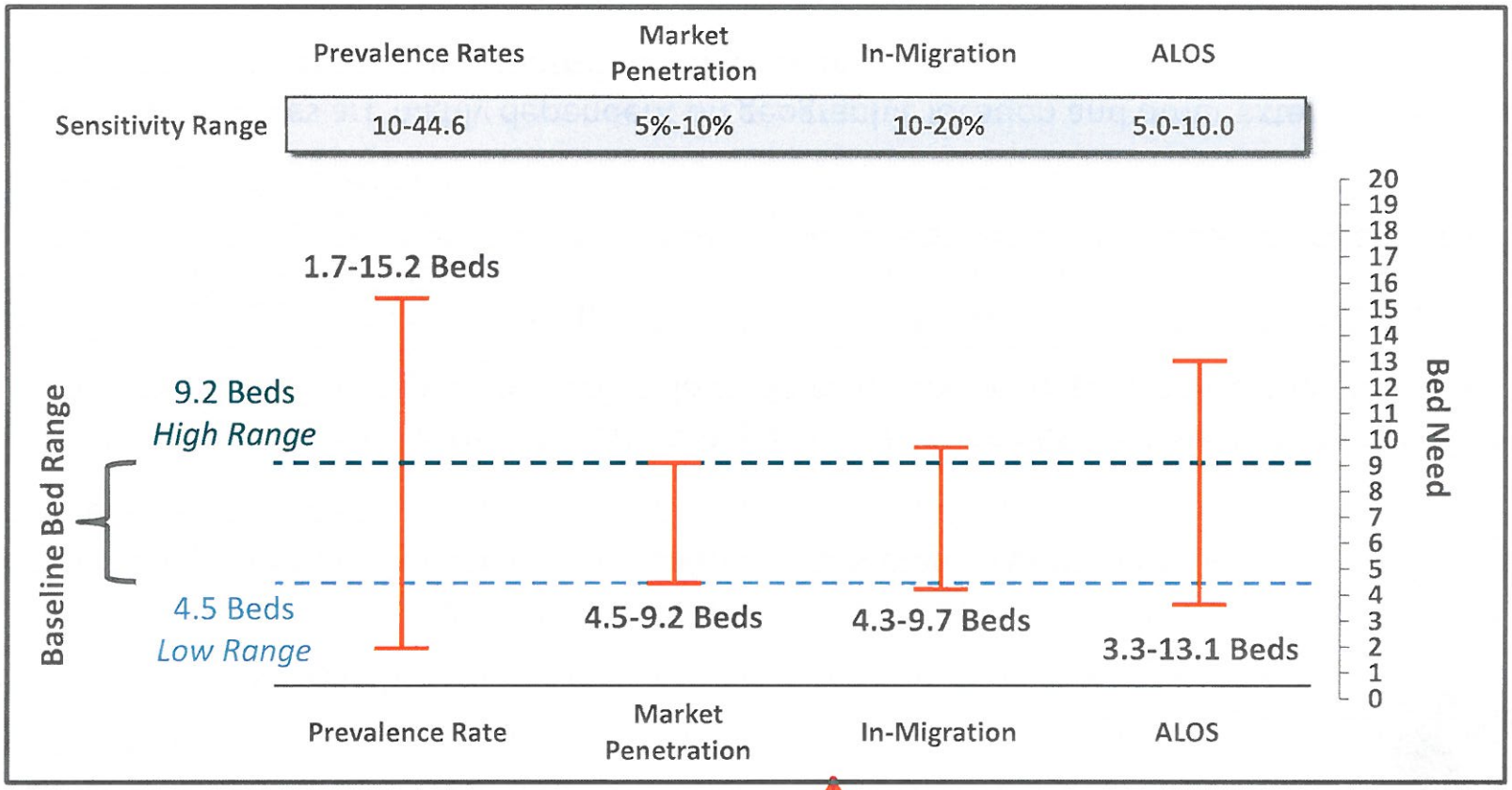
To test the inputs of the bed model, Kurt Salmon conducted a sensitivity analysis with the following parameters and outputs:

- The variable in question is the only one changed in the sensitivity analysis; the remaining variables remain as defined in the baseline scenario to determined the range of the tested variable
- Variables tested are characterized by different degrees to which they can be controlled.
  - Market Penetration, In-Migration, and ALOS are at least somewhat impacted directly by Crescent Cove decisions and tactics
  - Prevalence rates are highly dependent on geographic location and other external factors and are outside of Crescent Cove's control to influence bed demand
- The Baseline bed range total of 4.7-9.6 beds is likely appropriate for Crescent Cove if the various benchmarks within Crescent Cove's control can be achieved

Demand Model

Sensitivity Analysis – Respite Care

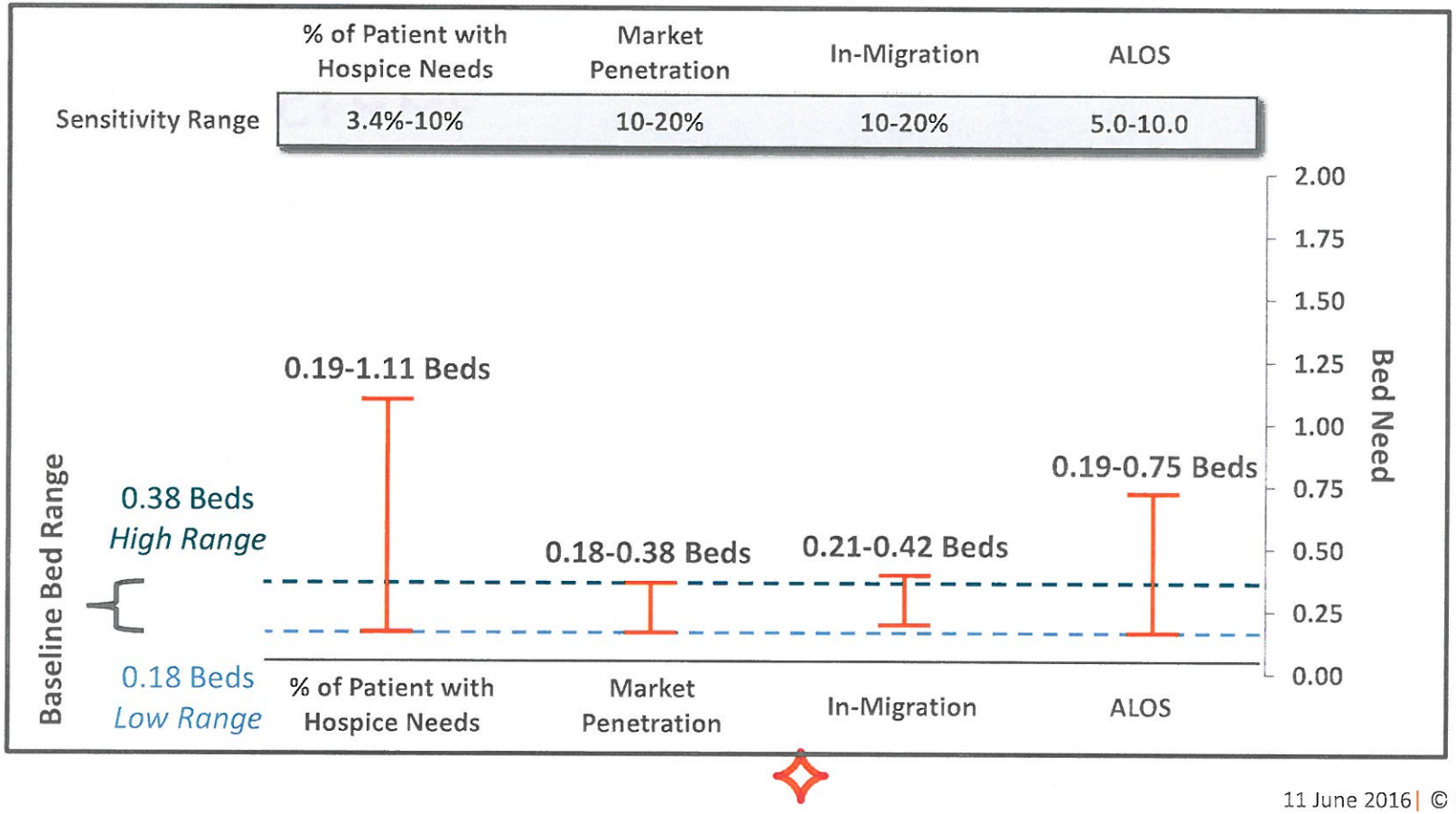
- Respite Care represents the largest potential cohort for bed demand and is at least 20x greater than the potential demand for hospice
- The most sensitive variables for the Respite Care patient cohort are the Prevalence Rate and ALOS, with only ALOS being within Crescent Cove's realm of control



Demand Model

Sensitivity Analysis – Hospice Care

- A more stable, less seasonal demand for hospice care suggest a rationale for 1-2 beds
- With LOS likely to remain variable and somewhat unpredictable, few variables are within Crescent Cove's control and/or are likely to influence the resulting bed need



Conclusions, Recommendations & Next Steps

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Interview Participants

22 of 26 interviews have been completed, including 4 Board Members, 8 Clinical Advisory Council Members, 7 Patient Family Members, 4 Pediatric Respite/Hospice Facilities, and 1 Clinician.

Interviewee Name	Interviewee Title	Interviewee Name	Interviewee Title
Jason Albrecht	Clinical Council	Rochelle Wodarz Nelson*	Homecare Nurse Director
Jan Aldridge	Pediatric Respite/Hospice Facility	Kaci Osenga, M.D.**	Physician
Jess Boerboom*	Patient Family Member	Michele Peterson, M.D.	Board Member / Clinical Council
Ted Bowman	Clinical Council	Dannette Rodriguez	Patient Family Member
Jody Chrastek	Clinician	Jennifer Samountry*	Patient Family Member
Holly Cottor	Pediatric Respite/Hospice Facility	Scott Schwantes, M.D.	Board Member / Clinical Council
Claire Crawford & Tanice Miller	Pediatric Respite/Hospice Facility	Katie Sherman	Patient Family Member
Rick Frommeyer	Board Chair	Dannell Shu	Patient Family Member
Emily Gold	Patient Family Member	Ken Sommer	Pediatric Respite/Hospice Facility
Jeannie Goodspeed, M.D.	Clinical Council / Family	Zach Tift	Patient Family Member
Naomi, Goloff, M.D.	Clinical Council	Jill Wall	Clinical Council / Family
Geoff Kaufmann	Board Member	Natalie & Alan Wilson	Clinical Council / Family
Jim Liddy	Consultant; Fundraising Assessment	Theresa Zimanske	Patient Family Member

*Working on scheduling / Have not heard back
**Emailed key questions

Data Findings

Summary for Demand Model

Based on limited data, some assumptions will have to be driven by research, experiences of other homes, and direction from the Clinical Advisory Council.

Model Input	Key Assumptions – Based on Interviews

Cohort Definition	› **Age**: 0-21
	› **Diagnoses for End of Life** – reliance on Palliative teams at affiliate hospitals to provide a panel size or identify based on mortality data and specific diagnoses (i.e., Cancer)
	  › **Palliative Care: Panel Size** – *Gillette (18-26), Masonic (YY), Children's Minnesota (ZZ)*
	  › **Diagnoses for Respite** – Leverage all diagnoses provided *in Directory of Life-Limiting Conditions v1.3*
	› **Mortality rates** – review mortality data in the state of MN to identify pediatric patients who would be eligible for hospice care

Patient Origin / Geographic Draw	› **Respite** – Twin Cities and Greater Minnesota and neighboring counties from WI,ND,SD, IA (assume higher in-migration from neighboring counties) › **Hospice** – Limit target to Twin Cities or patient population at partner hospitals (assume limited in-migration from neighboring counties)
Market Capture	› **Market Capture**: 5-20% of MSA LLC/LLT Patients › **In Migration:** 10-20% of Total Admissions from outside of MSA
Mix of Admissions	› 75-95% Respite; 5-25% Hospice
Length of Stay	› **Respite**: 2 days – 7 days per stay; 14 days – 28 days total per year (limits TBD) › **Hospice**: 5 days – 6 weeks › **Overall Average**: 5-9 days

Data Findings

North American Pediatric Respite Homes and Hospices

Based on interviews with the North American pediatric hospices, the following data points can help build a basis for the potential demand at Crescent Cove.

	Ryan's House	George Mark	Canuck Place
2015 Total Area Population	3.9 Million – Arizona	7.6 Million – Bay Area	4.6 Million – British Columbia
2015 Est. Pediatric Population	1.2 Million	2.1 Million	950 Thousand
Rooms	8 Rooms; 3 Family Suites	8 Rooms; 2 Family Suites	9 Rooms; 4 Family Suites
Total Admissions	188	136	418
Respite Visits	142 (~75%)	~108 (80% respite)	348 Respite; 42 Pain Mgmt
Hospice Visits	46	~28	28
Average Length of State	Respite: 2-2.5 Days Hospice: 5 Days	9 days	Respite: 5-7 Days Hospice: 5 Days
Average Daily Census[1]	1.6	3.4	5.7
Occupancy[1]	20%	42%	64%
Age Cohorts	0-16	Respite: 0-22 Hospice: 0-26	0-19
Geographic Draw	Largely Metro area; some outlying towns in Northern AZ. Respite care limited outside PHX	77% - SF Bay Area Predominantly 9-county Bay Area market; all of CA for respite	All of British Columbia and Yukon
Other Considerations	› 28 Day Respite max per yr › Relationship with Phoenix Children's	› Provide transitional care services (reimbursed) › Exploring Pediatric hospital affiliation	› 20 Day Respite Max › Children graded by Acuity › Relationship with Children's Hospital, BC

1. Estimated Based on ALOS

Data Findings

Market Comparison

- Depending on available pediatric palliative care prevalence rates (10/10,000 – 44.6/10,000), the expected market size for pediatric hospice care in the Minneapolis-St. Paul MSA could vary from 876 – 3,906 patients; and from 1,592-7,101 patients for the entire state
- Depending on prevalence rates and variable market dynamics, market capture ranges from 2-16%
- While these data points provide a reference, additional data will be necessary to triangulate the true need within the Twin Cities MSA for pediatric hospice care

Location	Minneapolis-St. Paul MSA	Phoenix MSA	San Francisco MSA
2016 Peds Population	875,777	1,190,973	2,010,990
2021 Peds Population	907,124	1,247,375	2,090,145
2016-2021 Peds CAGR	0.7%	0.9%	0.8%
Peds Palliative Care Prevalence Rates[1]	**10 – 44.6 children per 10,000 in population**		
2015 Estimated Peds Palliative Care Market[2]	876 – 3,906	1,191 – 5,312	2,011 – 8,969
Current Pediatric Homes Admissions[3]	N/A	188	136
Estimated 2015 Capture Rate	N/A	4%-16%	2%-7%

1. Based on prevalence rates found in previous slide
2. Based on Pediatric Palliative Care Use Rates
3. Admissions for Ryan's House in Phoenix and George Mark Children's House in San Leandro, California; Admission dates are from 2015 for Ryan's House, and 2012 for George Mark Children's House

Source: Claritas, Ryan's House, George Mark Children's House, Kaiser State Health Facts

Data Findings

LLC/LTC Prevalence

- There are multiple research studies that have commented on prevalence *(the percentage of a population that is affected at a given time)* of life limiting conditions and/or life threatening conditions (LLC / LTC) in children, ranging anywhere from 0-21 years of age
- The statistics vary dramatically over the years and based on source; 10 – 44.6 per 10,000 in population, averaging 26.8 per 10,000

Prevalence	Age Group	Source	Year
17.2 per 10,000 (Northern Ireland)	0-17 years	The Irish Hospice Foundation[1]	2000
27.8 per 10,000 (Northern Ireland)	0-19 years	Leeds University[2]	2010
12 per 10,000 (Wales)	0-17 years	The Irish Hospice Foundation[1]	2005
44.6 per 10,000 (Wales)	0-19 years	Leeds University[2]	2010
32 per 10,000 (England)	0-19 years	Leeds University[2]	2010
38.6 per 10,000 (Scotland)	0-19 years	Leeds University[2]	2010
32 per 10,000 (UK)	0-17 years	The Irish Hospice Foundation[1]	2012
10 per 10,000 (National)	0-19 years	Italian Journal of Pediatrics[3]	2008

Sources:
1. The Irish Hospice Foundation, LauraLynn, Oreland's Children's Hospice: National Needs Assessment, published 2013
2. University of Leeds: Final Report for Children's Hopsice UK Oct 2011; Fraser et al Life-Limiting Conditions in Children in the UK, Division of Epidemiology, University of Leeds 2011
3. Commentary Open Access Pediatric palliative care. Franca Benini, Marco Spizzichino, Manuela Trapanotto and Anna Ferrante. *Italian Journal of Pediatrics* 2008

Data Sources

- The Irish Hospice Foundation, LauraLynn, Oreland's Children's Hospice: National Needs Assessment, published 2013
- University of Leeds: Final Report for Children's Hopsice UK Oct 2011; Fraser et al Life-Limiting Conditions in Children in the UK, Division of Epidemiology, University of Leeds 2011
- "Rising National Prevalence of Life-Limiting Conditions in Children in England". Pediatrics, Aprul 2012, Volume 129 / Issue 4
- Commentary Open Access Pediatric palliative care. Franca Benini, Marco Spizzichino, Manuela Trapanotto and Anna Ferrante. Italian Journal of Pediatrics 2008
- American Hospital Association Guide, 2016
- Claritas Online Demographic Database
- Kaiser State Health Facts
- 2013 Minnesota Mortality Data, Minnesota Department of Health
- George Mark
- Ryan's House
- Canuck Place

Appendix

Next Steps

- Incorporate data from MHA and U of M Masonic Children's Hospital into modeling
- Compile and submit Final Report

Recommendations

1. Continue to provide existing services, while selectively adding service offerings to establish Crescent Cove as the preferred source in the Twin Cities for information and services related to children with LLC/LTC
2. Develop and enhance relationships and partnerships with providers in the community to secure and grow the Crescent Cove patient base
3. Pursue land acquisition/facility development around initial build of ~4 beds, with opportunity for subsequent expansion, as appropriate

Conclusions

- While the population base in the Twin Cities is large enough to generate demand for a pediatric hospice and respite facility, market complexities such as multiple pediatric hospitals may prove to be a significant challenge (as exemplified by George Mark)
  - Execution of an outreach and partner strategy will be paramount in Crescent Cove's success
  - While it will be important for Crescent Cove to maintain its neutrality, formal ties with pediatric providers are highly recommended for the initial start of the program and for sustained growth
  - The Crescent Cove facility needs to be in close proximity to its pediatric provider partners for ease in patient transfers, future program development, etc.
- Challenges in limited reimbursement for pediatric respite and hospice care places a tremendous amount of pressure on philanthropy; strength in business and strategic planning is essential to ensure donor confidence
- Staffing partnerships (e.g., with Pediatric Home Services) should be established to minimize variable staffing costs for Crescent Cove and enhance patient continuity of care
- Programs that put Crescent Cove at the center of pediatric hospice and long term care planning in the Twin Cities will expand its reach and relationships and may lend for reimbursement opportunities
  - Transitional care to get providers' long-term, high cost patients out of the hospital
  - Patient/family care coordination; parent and sibling support groups; hospice "care-sierge"