California Health Care Foundation
HEALTH CARE THAT WORKS FOR ALL CALIFORNIANS

Estimating the number of individuals eligible for SB1004 palliative care and appreciating baseline utilization patterns and costs in the final year of life

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Workshop objectives

1. Describe SB1004 eligibility criteria and why estimating # of eligible patients/members and their baseline utilization patterns is useful, but potentially difficult
2. Describe a method for estimating the number of patients/members who would qualify for SB1004 based on current plan enrollment
3. Describe a retrospective method for estimating the number of eligible patients/members in a given year
4. Identify potentially useful data points from a decedent analysis
5. Consider lessons from the literature and the field
6. Identify local data sources and individuals within your organization who would do this work
7. Review resources and identify additional materials that might facilitate SB1004 implementation

Workshop structure

- Introductions and SB1004 review
- Methods for estimating the number of SB1004 eligible members
- Useful data points from a decedent analysis
- Break
- Lessons from the literature, field and additional considerations
- Goals and planning
- Resource review
- Q & A

Introductions

- Your name
- Your organization
- Your job title
- Your current or expected role in relation to SB1004 PC

Rate your perception of your organization's readiness for SB1004 Palliative care (select one):

- ❑ Already meeting or exceeding requirements
- ❑ Mostly ready, not terribly worried
- ❑ Done planning, now implementing, a little anxious
- ❑ I have no idea what you are referring to

Palliative Care Definition

*Palliative care is **specialized** medical care for people with **serious** illnesses. This type of care is focused on providing patients with relief from the symptoms, pain, and **stress** of a serious illness **whatever the diagnosis**.*

*The goal is to improve **quality of life** for both the **patient and the family**. Palliative care is provided by a **team** of doctors, nurses, and other specialists who **work with** a patient's other doctors to provide an **extra layer of support**. Palliative care is appropriate at any age and at any stage in a serious illness, and can be **provided together with curative treatment**.*

SB 1004

SB 1004 (Hernandez, Chapter 574, Statutes of 2014) requires the Department of Health Care Services (DHCS) to "establish standards and provide technical assistance for Medi-Cal managed care plans to ensure delivery of palliative care services"

- Policy documents, contact information for DHCS available at SB1004 web site:

http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx

- Revised implementation date: January 1, 2018

Required services SB1004 PC

- Advance Care Planning
- PC Assessment & Consultation
- Plan of Care
- PC Team
- Care Coordination
- Pain and symptom management
- Mental Health and Medical Social Services
- Chaplain Services
- (24/7 telephonic support)

SB 1004 population: general criteria

- Likely to or has started to use the hospital or emergency department as a means to manage his/her late stage disease
- Late stage of illness, appropriate documentation of continued decline in health status, not eligible for or declines hospice enrollment
- Death within a year would not be unexpected based on clinical status

See SB 1004 policy paper for description of most recent draft eligibility criteria
http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx

SB 1004 population: general criteria

- Has received appropriate patient-desired medical therapy, or patient-desired medical therapy is no longer effective; not in reversible acute decompensation
- Beneficiary and (if applicable) family/patient-designated support person agrees to:
  - Attempt in-home, residential-based or outpatient disease management instead of first going to the emergency department; and
  - Participate in Advance Care Planning discussions

See SB 1004 policy paper for description of most recent draft eligibility criteria
http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx

Disease-specific criteria

- Congestive Heart Failure (CHF):
  - Hospitalized for CHF with no further invasive interventions planned OR meets criteria for NYHA heart failure classification III or higher, AND
  - Ejection Fraction <30% for systolic failure OR significant co-morbidities

- Chronic Obstructive Pulmonary Disease (COPD):
  - FEV 1 <35% predicted AND 24-hour oxygen requirement <3 liters per minute OR
  - 24-hour oxygen requirement ≥3L per minute

See SB 1004 policy paper for description of most recent draft eligibility criteria
http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx

Disease-specific criteria

- Advanced Cancer:
  - Stage III or IV solid organ cancer, lymphoma, or leukemia, AND
  - Karnofsky Performance Scale score ≤70 OR failure of 2 lines of standard chemotherapy

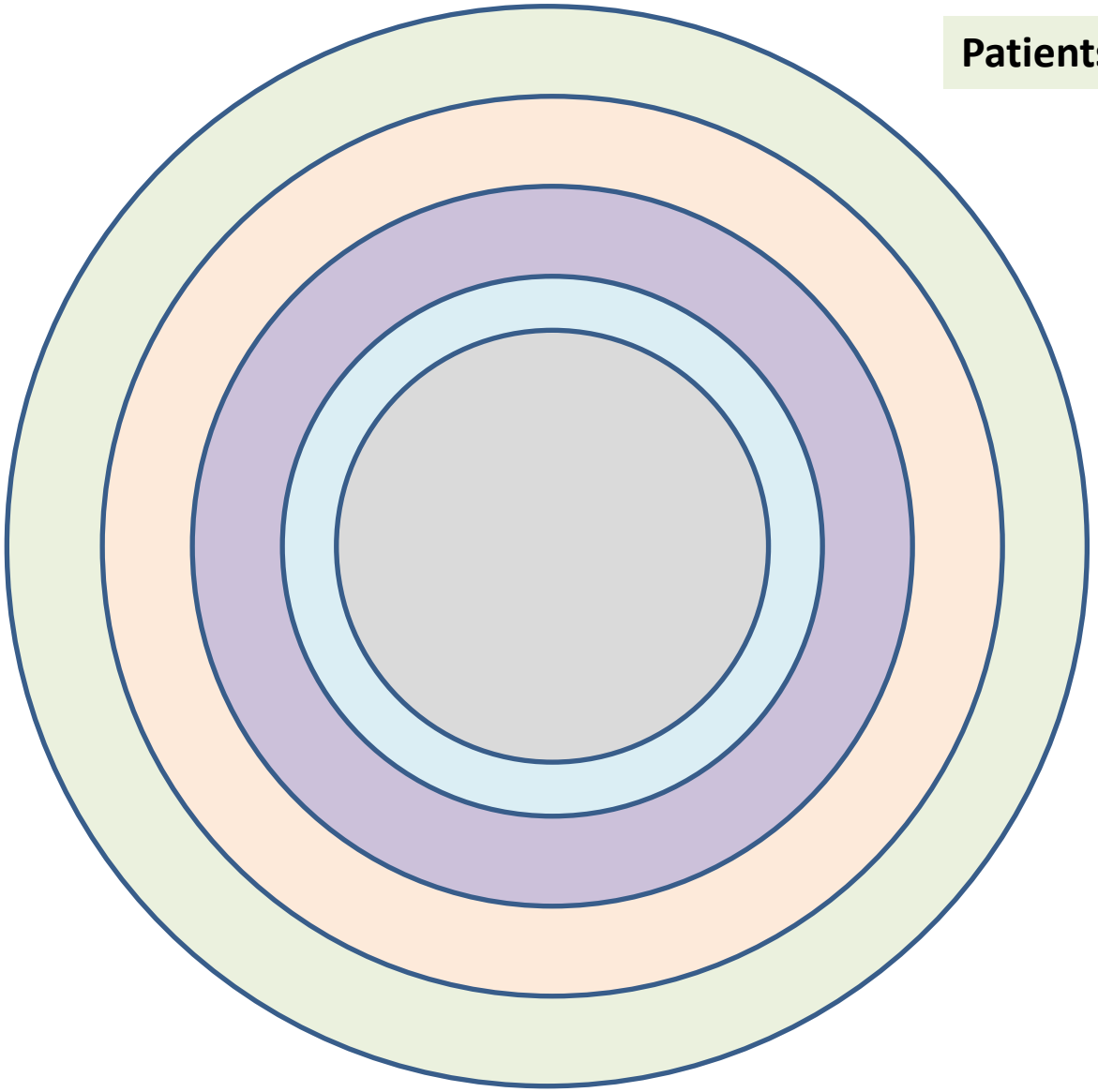
- Liver Disease:
  - Evidence of irreversible liver damage, serum albumin <3.0, and INR >1.3, AND
  - Ascites, subacute bacterial peritonitis, hepatic encephalopathy, hepatorenal syndrome, or recurrent esophageal varices OR
  - Evidence of irreversible liver damage and MELD score >19

See SB 1004 policy paper for description of most recent draft eligibility criteria
http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx

Impressions of the population

- From a clinical perspective, what are your thoughts on the SB1004-eligible population?
- From an analytic / informatics perspective, what are your thoughts on the eligibility criteria?

SB1004 Population in Context



Patients who would benefit from PC

Patients with SB1004 conditions

SB1004 eligible patients

Eligible patients who are referred/identified

Patients who are able / willing to accept services

Number of eligible patients is a starting point

- Providers need to know about and refer to the program
- Eligibility needs to be recognized early enough to allow for a referral to PC
- Patients need to be willing and able to accept services

Take home: it is likely that only a subset of individuals who would benefit from PC will in fact be eligible AND will be referred AND will be willing / able to accept services

Why analyzing this population can be hard

- Not all eligibility criteria can be assessed using claims data
- Diagnosis and other data could be incomplete or inaccurate
- For some analyses need to go get data describing date of death
- Limited IT resources (e.g., no analytic software that assigns risk for hospitalization or death, or generally tough to extract data from claims system)
- Limited analytic staff time

Why bother?

- Informs program planning/network-building for specialty PC
- Appreciate how and when patients are accessing services currently
  - Can inform estimates of how long pts will receive PC
  - Help to focus education/outreach efforts for primary and specialty PC
- Good preparatory step for analyzing impact of PC services after implementation

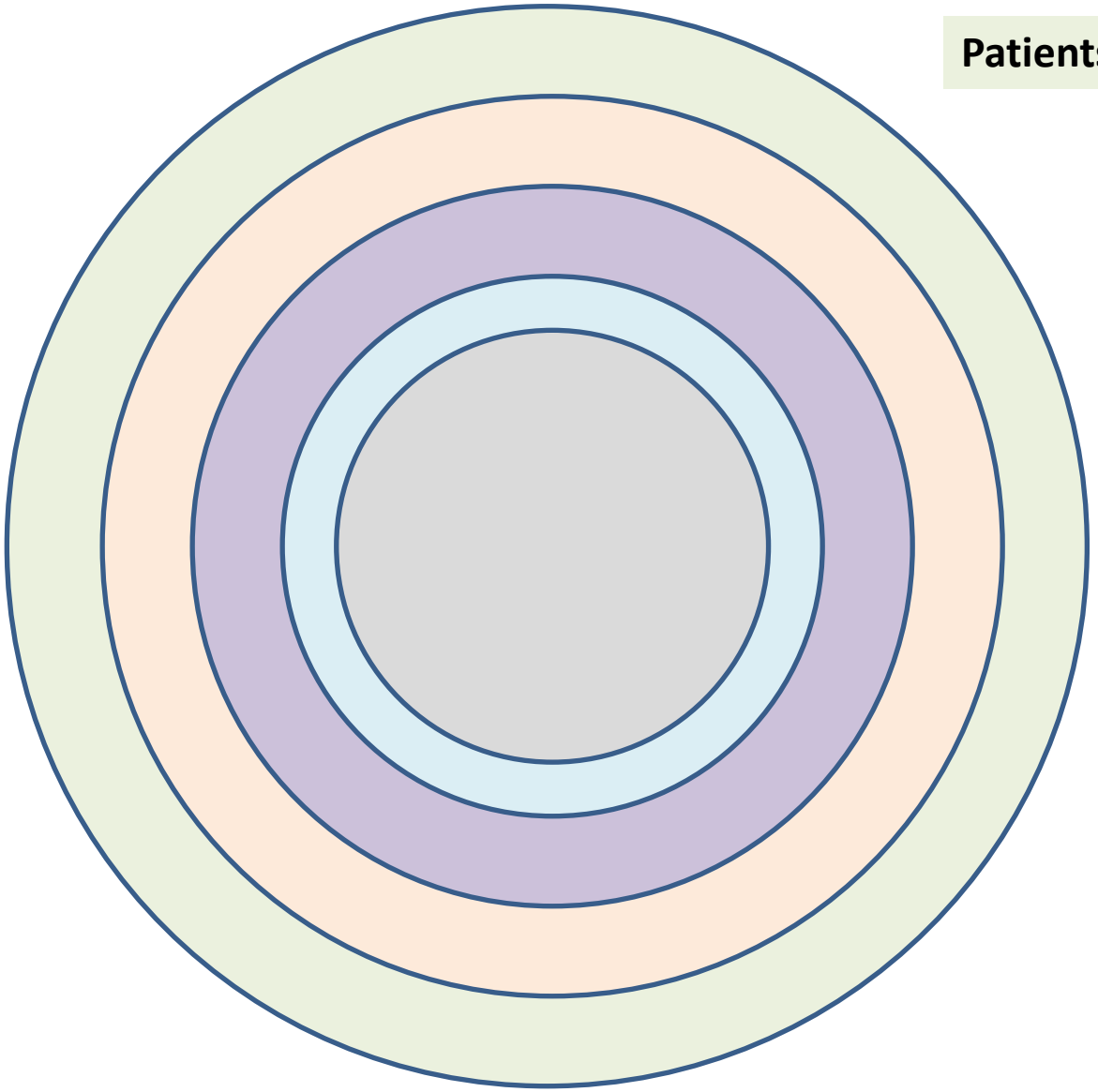
Note: we will only briefly cover the related but distinct issue of using claims data (+/- other inputs) to trigger appropriate referrals (that is covered in Topic 4)

Questions and discussion

- Has your organization estimated the number of potentially eligible patients? If so, how did that go?
- Has your organization analyzed how the SB1004 population is currently using health care services? If so, how did that go?

Estimating the number of plan members who might be eligible for SB1004 PC

SB1004 Population in Context



Patients who would benefit from PC

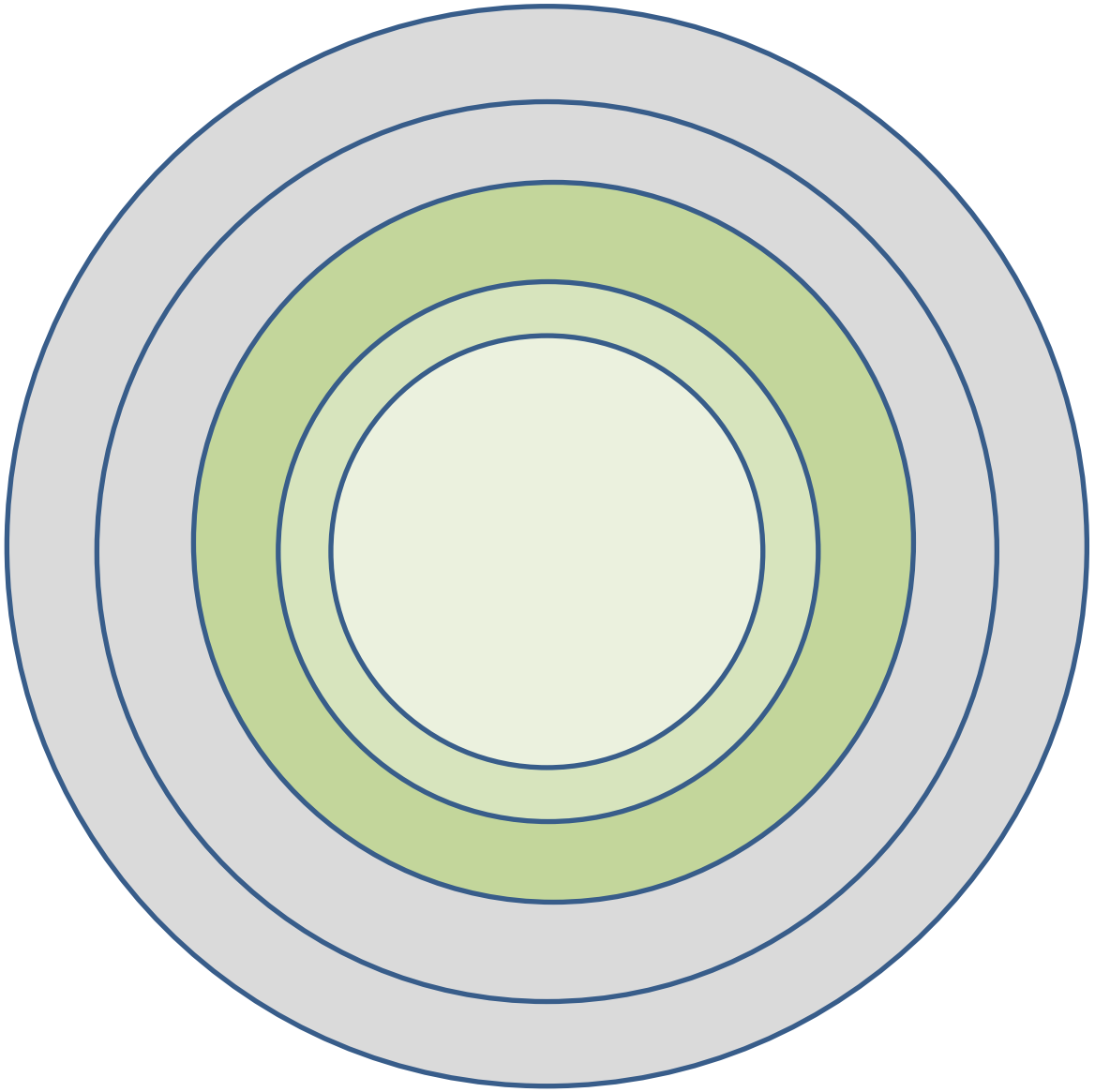
Patients with SB1004 conditions

SB1004 eligible patients

Eligible patients who are referred/identified

Patients who are able / willing to accept services

The number(s) we're looking to estimate



SB1004 eligible patients

(+/-) Eligible patients who are referred/identified

(+/-) Patients who are able / willing to accept services

Data sources addressing eligibility criteria

- Some criteria are documented in claims data
  - *Diagnoses, use of health services, prior hospice enrollment, pharmaceuticals, home O2*
- Some criteria might be documented in an EHR
  - *Lab values/bio-markers, detailed info re stage of illness, ACP/goals of care discussions, functional status*
- Some criteria can only be reported by providers and/or patients/caregivers, or gathered by manual chart review
  - *All possible EHR values if not available from that source, patient preferences, care plans, willingness to attempt in-home therapy and participate in ACP*

It is not practical (and probably not possible) to consider all criteria when estimating number of eligible patients

What is documented in claims data?

GENERAL CRITERIA

- Use of hospital or emergency department, recent disenrollment from hospice, authorization for hospital bed /home O2/other DME

DISEASE-SPECIFIC CRITERIA

- Congestive Heart Failure:
  - Hospitalized for CHF
  - Presence of significant co-morbidities
- Chronic Obstructive Pulmonary Disease:
  - Authorization/claim for home O2
- Advanced Cancer:
  - Stage III or IV solid organ cancer, lymphoma, or leukemia
  - Has received 2 lines of standard chemotherapy
- Liver Disease:
  - Co-morbid conditions: ascites, subacute bacterial peritonitis, hepatic encephalopathy, hepatorenal syndrome, or recurrent esophageal varices

What might be documented in (and possible to extract from) an EHR?

GENERAL CRITERIA:

- Functional status (Karnofsky, ECOG, PPS), documentation of hospice education/eligibility discussions, goals of care discussions

DISEASE-SPECIFIC CRITERIA

- Congestive Heart Failure:
  - NYHA heart failure classification III or higher
  - Ejection Fraction <30% for systolic failure
- Chronic Obstructive Pulmonary Disease:
  - FEV 1 <35% predicted
  - 24-hour oxygen requirement
- Advanced Cancer:
  - Karnofsky Performance Scale score ≤70
- Liver Disease:
  - Serum albumin <3.0, and INR >1.3
  - MELD score >19

What is likely only knowable from chart review +/- discussion with providers and patient/family

GENERAL CRITERIA

- Not eligible for or declines hospice enrollment
- Death within a year would not be unexpected based on clinical status
- Has received appropriate patient-desired medical therapy
- Beneficiary and (if applicable) family/patient-designated support person agrees to:
  - Attempt in-home, residential-based or outpatient disease management instead of first going to the emergency department; and
  - Participate in Advance Care Planning discussions

DISEASE-SPECIFIC CRITERIA

- Congestive Heart Failure
  - No further invasive interventions planned

Three types of criteria, three data sources

	Claims and authorization data	Electronic health records	Screening / assessment findings
Qualifying diagnoses	✓	✓	✓
Evidence of advanced disease	(✓)	✓	✓
Patient & family preferences		(✓)	✓

Methods for estimating number of eligible patients

Based on current membership: determine number of members/patients with qualifying dx and appropriate utilization history, supplement with available indicators of advanced disease

> *"Based on current membership, how many patients with qualifying diagnoses appear to have advanced disease?"*

Decedent analysis: identify a population of decedents with qualifying dx, look back from date of death to appreciate utilization patterns, timing of presentation in relation to death, costs in final year of life

> *"Based on recent historical experience, how many patients likely would have qualified for SB1004 PC and how did those patients utilize health care services?"*

Estimate based on current plan enrollment

- Mine claims data to identify members with qualifying diagnoses and some defined minimum amount of utilization
  - Use ICD-10 or HCC codes to specify disease group
  - Many patients have multiple conditions; assign primary
- Narrow to individuals with advanced disease (within each disease category)
  - Apply risk scores to determine probability of hospitalization or death (Optum Ingenix or similar tools, as available to plan/group)
  - Incorporate authorization/utilization data: admissions or ED visits, chemo/medications, home-equipment (hospital bed, O2, other DME), recent disenrollment from hospice

Analysis logic (see handout)

- Identify claims with qualifying dx
- Roll up to patient level (reconcile duplicates)
- Assign major disease category
- Trim to pts with ED visit/admit in last 12 months
- Use claims / authorization data to flag additional indicators of advanced disease; trim list accordingly
- If you have access, fold in EHR data
- Present findings as a range (e.g., “between 750-300 individuals annually”), to account for criteria that cannot be included in analysis

SFHP data

3602 qualifying claims

- Active member as of July 2017
- Medi-Cal only
- Utilization look back 1 yr; condition flagging look back 2 yrs
- Required 1 inpt admit or 2 OP visits

1137 non-duplicated members

- Required 1 qualifying diagnosis in last two years AND 1 ED visit or hospitalization in prior 12 months
- 28% had >1 qualifying condition
- 1137 = <1% of SFHP membership

743/1137 assigned to SFHN (remember this for later)

Pros and cons of this approach

Pros:

- No need to acquire external data
- Great for organizations that can access lab values/bio-markers, other EHR data to identify patients with advanced disease
- Great for organizations that can use pharmacy, DME and similar claims to identify patients with advanced disease
- Great for organizations that have access to analytic software that can assign acuity scores/assess risk for hospitalization
- Requires effort, but likely easier of two methods

Cons:

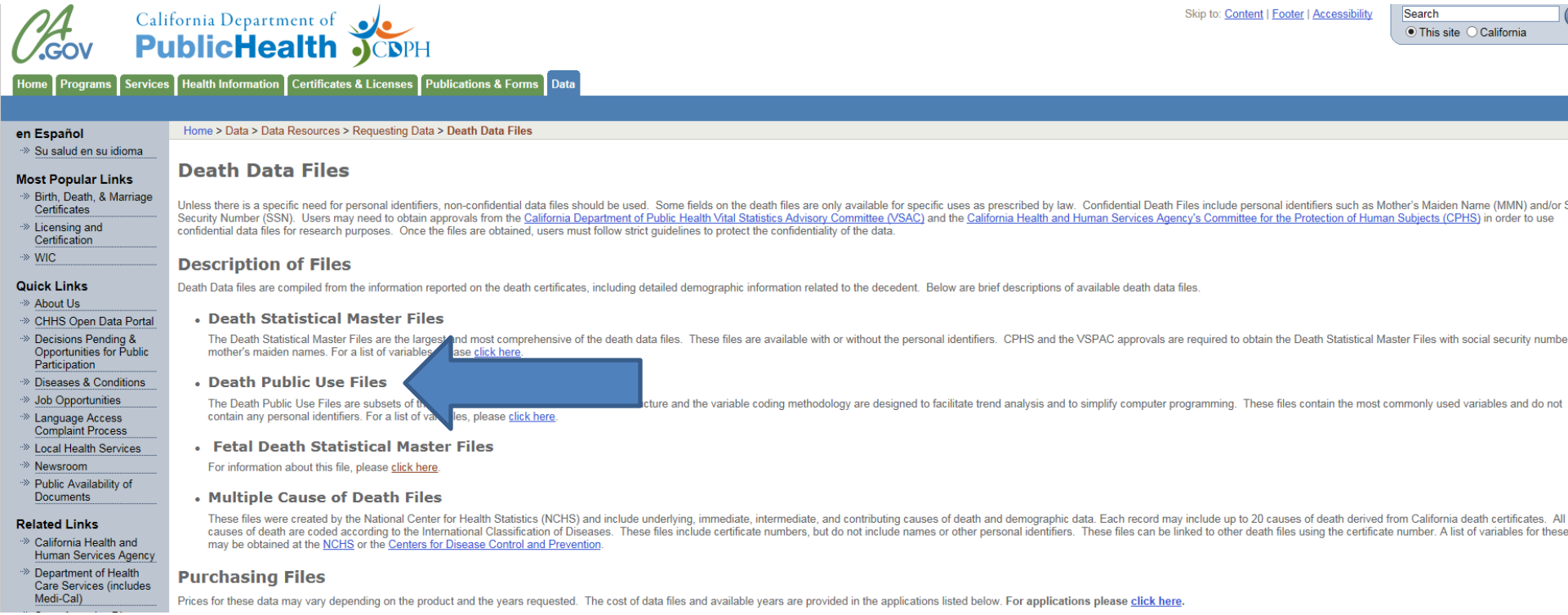
- Likely to over-estimate number of eligible patients if only consider primary diagnosis and some utilization data
- May be hard to refine estimates of acuity/eligibility depending on other (non-dx) data organization has access to
- Limited info about timing of presentation/utilization triggers in relation to death (so does not inform estimates of how long patients will be served)

Retrospective decedent analysis (see handout)

- Identify a population of decedents with qualifying diagnoses
  - In-hospital deaths
  - Other data to identify patients who died outside the hospital
- Exclude trauma patients
- Analyze the last 12-24 months of utilization
  - Number of decedents with qualifying dx
  - Utilization and costs of different types of services, over time
  - Estimate of when in relation to death became eligible for SB1004 PC
  - (Some) quality of care data

Death Public Use Files from CA DPH

https://www.cdph.ca.gov/data/dataresources/requests/Pages/DeathDataFiles.aspx



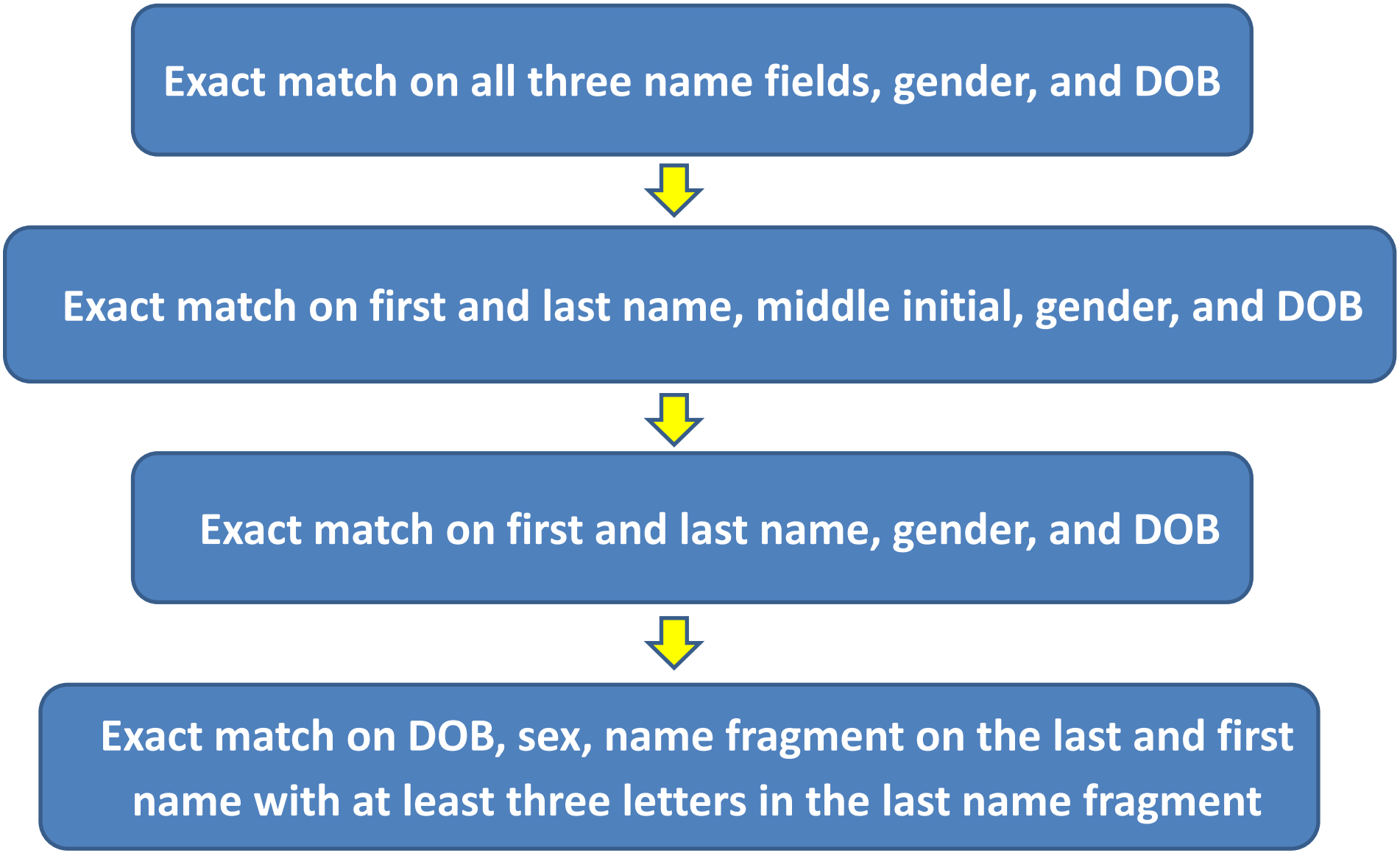
Information items

1. Last Name of Decedent	6. Place of Birth
2. First Name of Decedent	7. Place of Death (County of Death)
3. Middle Name of Decedent	8. Date of Death
4. Sex of Decedent	9. Father's Last Name
5. Date of Birth	

The data you need at an affordable price

- Minimal lag between death and file updates
- Flexible access options
  - Batch files: $200 for the first year, $10 for each additional year
  - Option to contract for quarterly/monthly delivery
- Simple application
  - Statement of how will use
  - Data security measures
  - Notarized

Matching Patients

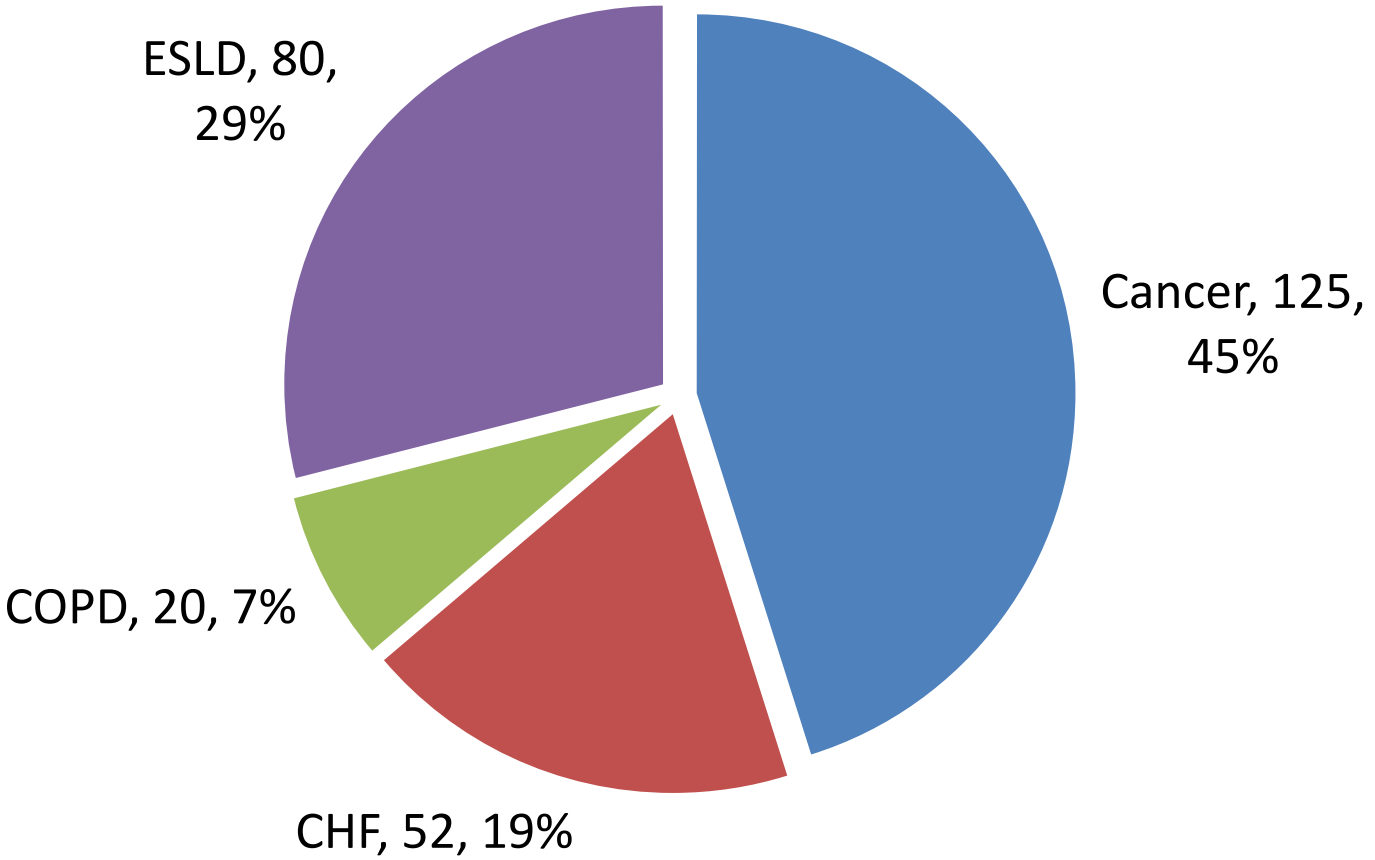


SFHN Decedent Analysis

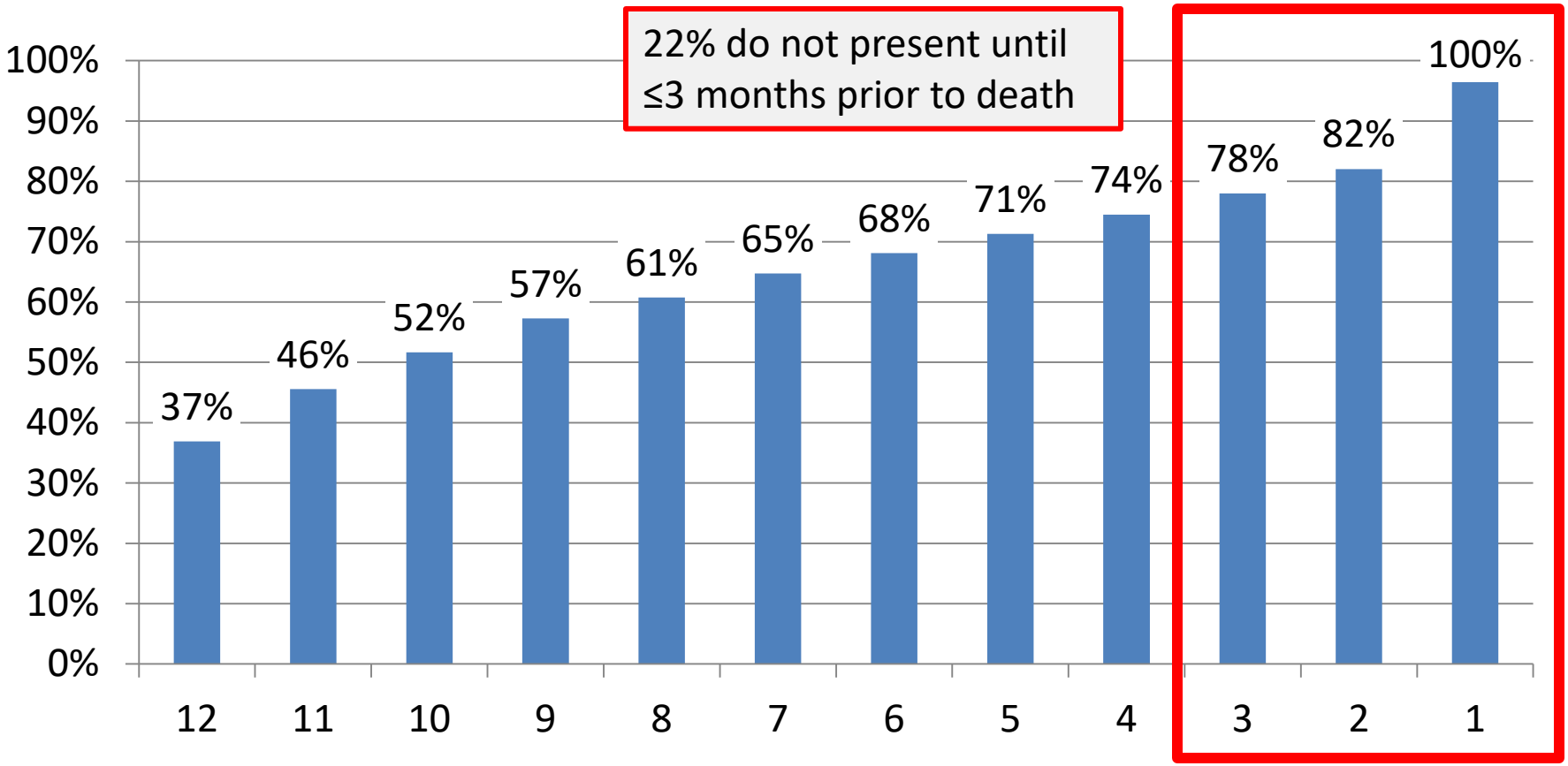
- Combined CA death data file and utilization data from SFHN
- SFHN pt defined as “2+ ambulatory encounters” or “1 hospitalization + 1 ambulatory encounter” in final 2 years of life; exclude individuals with zero contact in final 12 months
- Used primary and secondary diagnosis codes and procedure codes to determine disease groups
- Patients with multiple qualifying conditions (cancer + ESLD) assigned to a single disease group based on highest charges by condition
- For individuals with more than one primary payer, assigned to a single payer based on highest charges by payer
  - 747/2116 had primary payer = Medi-Cal

About how many SB1004 eligible patients are cared for by the SFHN in a typical year?

552/747 (74%) Medi-Cal beneficiaries (in 2-year data set) had SB1004 qualifying dx's. Estimated annual volume = 275-300



By what point in the last year of life are SB1004 patients becoming clinically active?



Proportion of SB1004 population that has become clinically active (begun accessing clinic/hospital/ED services), by month preceding death

Pros and cons of this method

Pros

- Because working with decedent population no need to worry about indicators of advanced disease (reason for 750 vs 300 estimate?)
- Yields useful information about expected volume, current utilization patterns and costs, and some aspects of care quality
- Can consider at what point in disease course patients likely became SB1004 eligible, to inform estimates of possible duration of services

Cons

- Time intensive
- Must acquire death data
- If death data file is incomplete or inaccurate, or if the match is flawed you will miss cases

Take-home points

- SB1004 eligibility criteria are based on qualifying dx, evidence of advanced disease and patient/family preferences
- Accuracy of estimates of number of eligible patients depends on data you have access to/incorporate in estimate
- Estimates can be derived by analyzing the currently enrolled population, or a decedent population
- The decedent analysis is a bit more difficult, but it probably yields more useful data

Resources

- Diagnosis codes (Excel spreadsheet file)
- Crosswalk eligibility criteria to claims data
- Method for estimating # eligible members based on current plan enrollment
- Methods and metrics for decedent analysis
- CDPH Public Use Death Data File FAQ

Questions and discussion

Appreciating baseline utilization patterns and costs among members who might have been eligible for SB1004 PC

About how many SB1004 eligible patients are cared for by the SFHN in a typical year?

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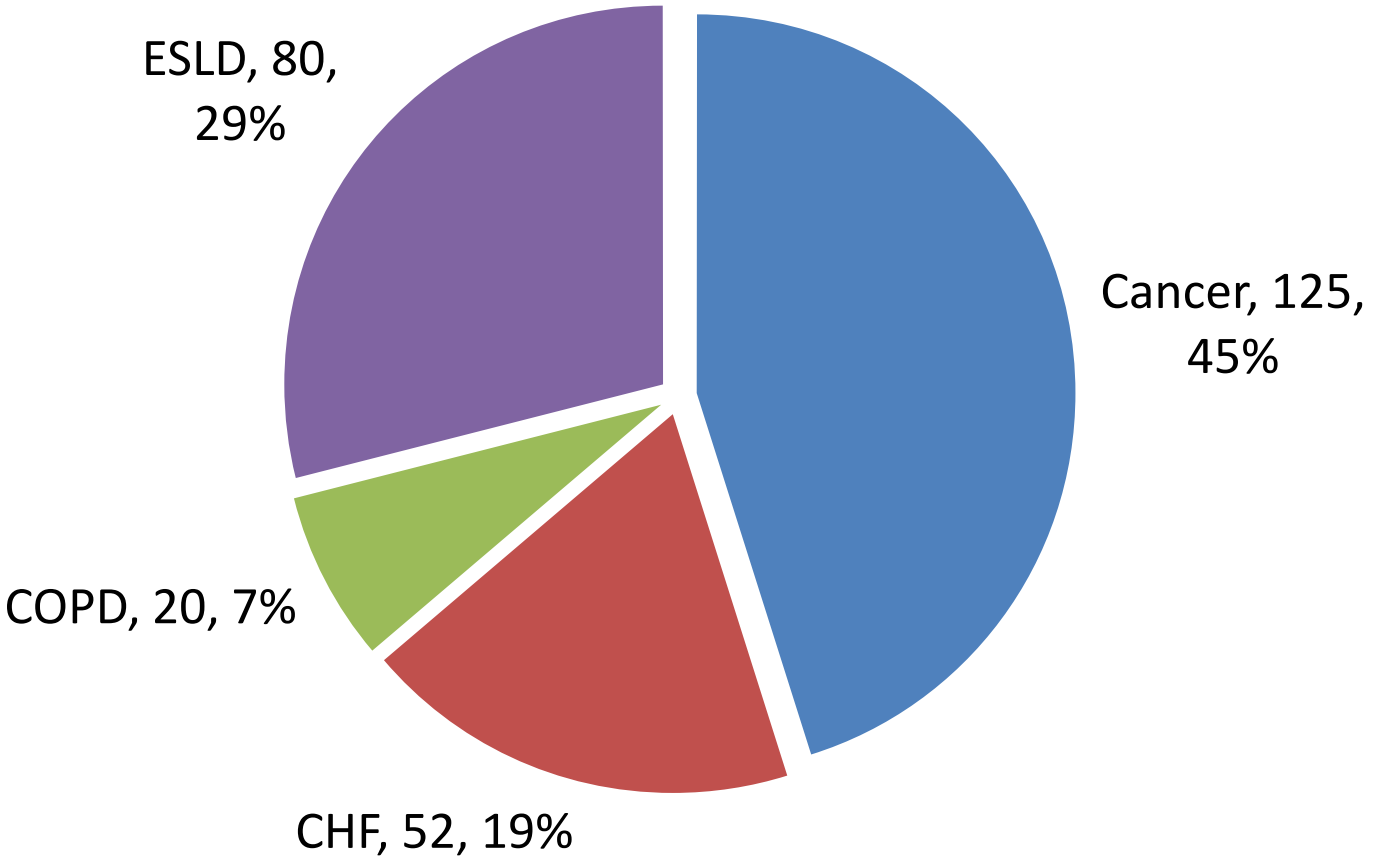
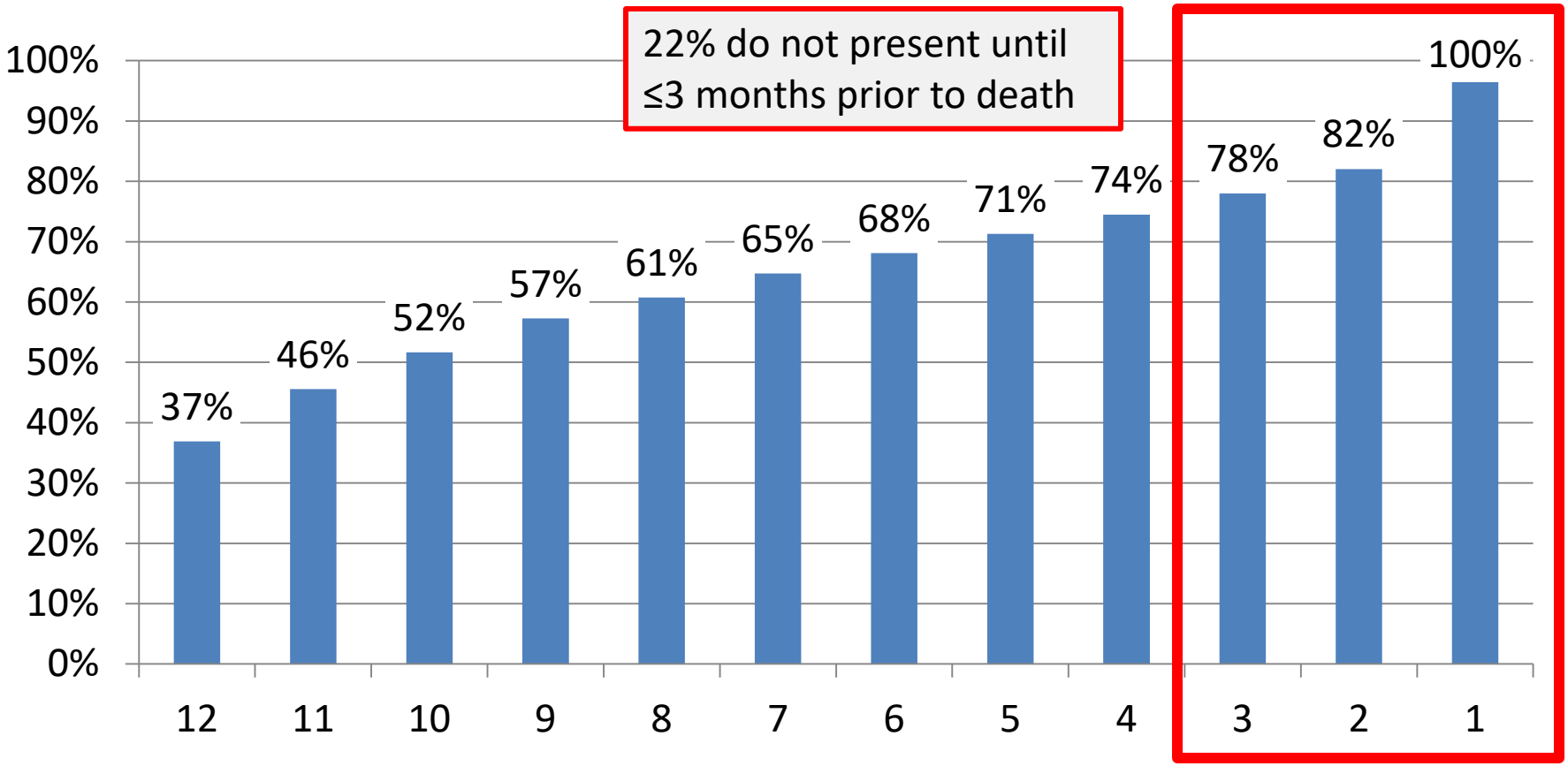


By what point in the last year of life are SB1004 patients becoming clinically active?



Proportion of SB1004 population that has become clinically active (begun accessing clinic/hospital/ED services), by month preceding death

Retrospective decedent analysis metrics

- Frequency, duration, intensity of hospitalizations, total and trended
- Frequency and timing of ED visits
- 30-day readmissions
- In-hospital and 30 day deaths
- Clinic visits (and use of other outpatient/home-based services of interest)
- Use and timing of specialty PC
- Use and timing of hospice
- Cost of care, total and trended

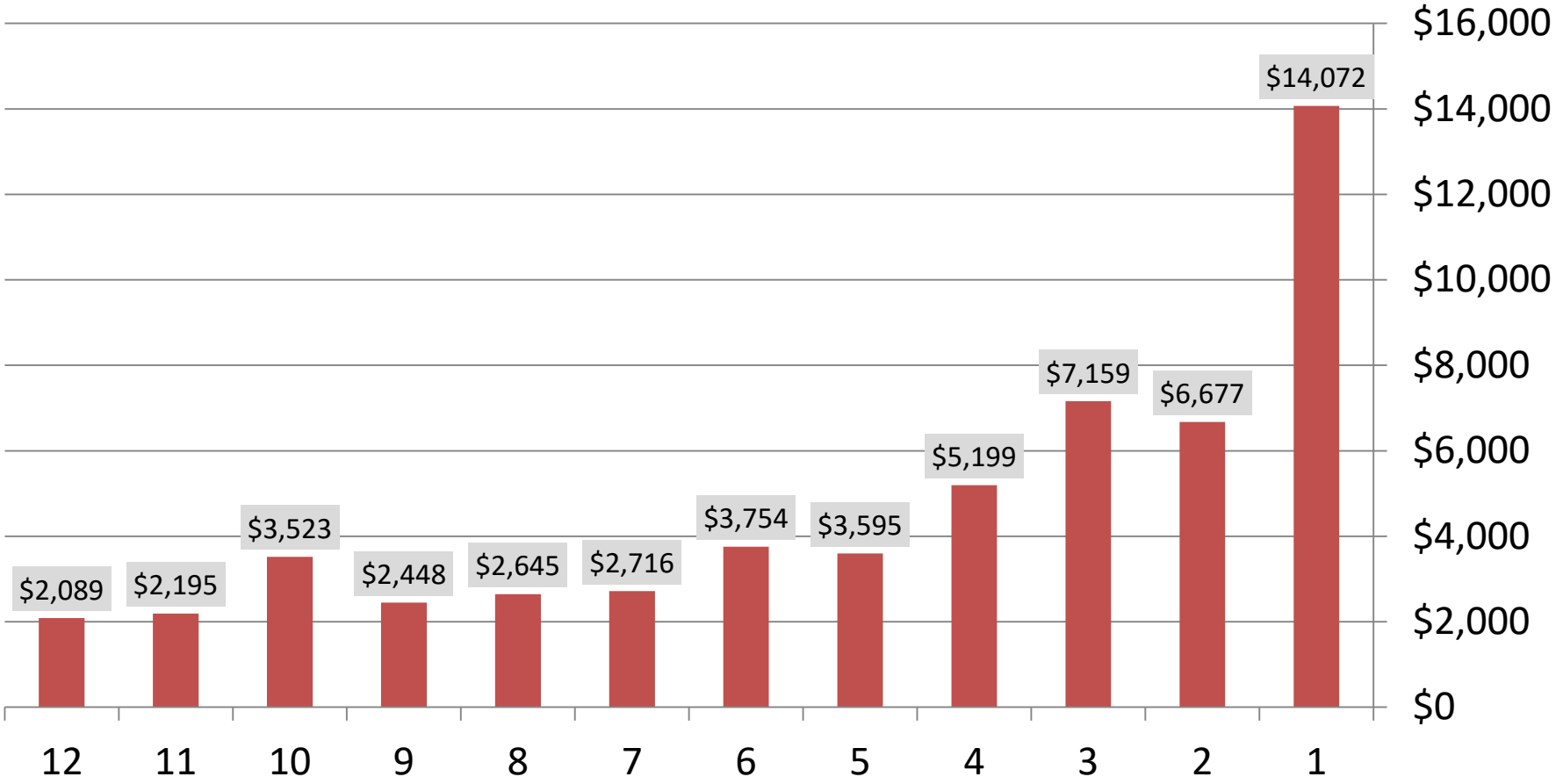
How often are SB1004 patients admitted to the hospital in the final year of life? In the final 6 months of life?

	Final year	Final 6 months
Avg per patient	2.97	2.32
Median per patient	3.00	2.00
Max per patient	28	20

What are the average costs per patient in the last year of life? In the last 6 months of life?

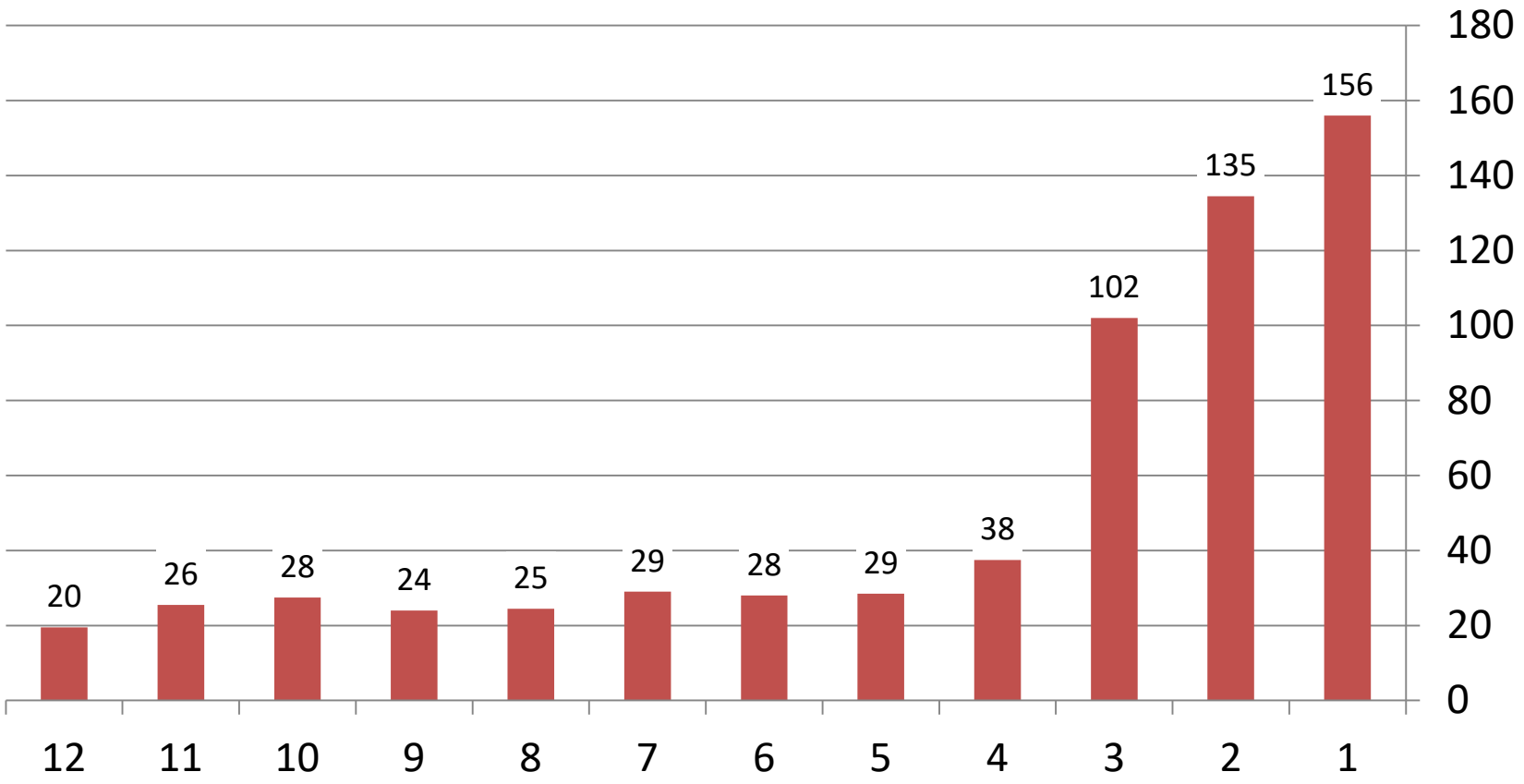
	Final year	Final 6 months	% in Final 6 Months
Mean	$56,072	$40,456	72%
Median	$34,402	$22,134	64%
Max	$645,855	$586,145	

How are costs distributed over the last year of life?



Average cost (all services) per patient, per month prior to death

What is the pattern for hospital admissions in the last year of life?



Number of annual admissions for SB1004 population (approximately 276 patients) by month preceding death

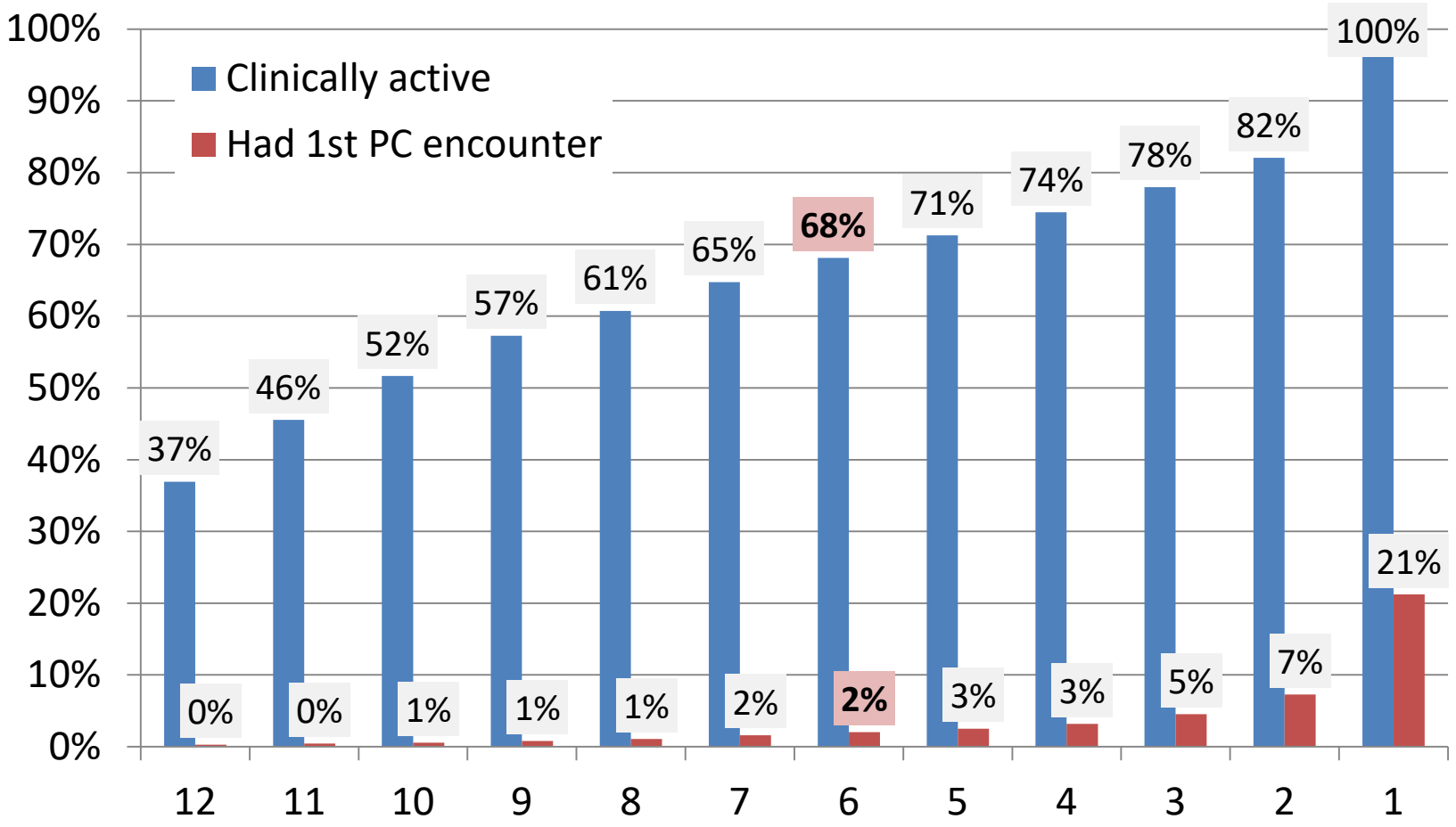
How many SB1004 patients are getting PC, and at what point in the disease course? (if only an inpatient PC service is available)?

- 69% of patients not referred to specialty PC
- 25% had 1st PC contact in the final 90 days of life
- 6% had 1st PC contact >90 days before death

Interval between first PC contact and death

- Mean: 60 days
- Median: 26.5 days
- Range: 0-352 days

Are SB1004 eligible patients clinically active early enough to allow for referral to a PC service?



At month 6 prior to death 68% of population is clinically active, but only 2% have had a contact with the specialty PC service

Analysis also useful for medical groups with shared risk

Where did they die?

Home	Hospital	Nursing Home/ Long-term care
		
34.4%	**39.4% (6.5% in ER)**	**18.5%**

- Note: only 2015 data had 'place of death'

Rollup for 11 terminal conditions

001 HIV/AIDS	HIV/AIDS
008 Metastatic Cancer And Acute Leukemia	Cancer
009 Lung And Other Severe Cancers	
010 Lymphoma And Other Cancers	
011 Colorectal, Bladder, And Other Cancers	
012 Breast, Prostate, And Other Cancers And Tumors	
018 Diabetes With Chronic Complications	Diabetes With Chronic Complications
027 End-Stage Liver Disease	Liver
028 Cirrhosis Of Liver	
029 Chronic Hepatitis	
046 Severe Hematological Disorders	Severe Hematological Disorders
085 Congestive Heart Failure	Congestive Heart Failure
086 Acute Myocardial Infarction	Acute Myocardial Infarction
099 Cerebral Hemorrhage	Stroke
100 Ischemic Or Unspecified Stroke	
103 Hemiplegia/Hemiparesis	
106 Atherosclerosis Of Extrem W/Ulceration Or Gangrene	Vascular Disease
107 Vascular Disease With Complications	
108 Vascular Disease	
111 COPD	COPD
134 Dialysis Status	Renal
136 Chronic kidney disease, Stage 5	
137 Chronic kidney disease, Severe (Stage 4)	

End of Life Cost to Hill: Diseases

- Professional fees only – facility fees not included
- By chosen chronic conditions

Chronic Condition	Members	Cost last 30 days		Cost last 6 months		% of 6 mo cost in last 30 days
		Total	Avg per patient	Total	Avg per patient	
Congestive Heart Failure	1215	$ 2,594,902	$ 2,136	$ 11,154,924	$ 9,181	23.3%
Cancer	1054	$ 2,045,518	$ 1,941	$ 6,303,043	$ 5,980	32.5%
COPD	875	$ 3,159,203	$ 3,611	$ 9,145,119	$ 10,452	34.5%
Stroke	588	$ 1,564,494	$ 1,788	$ 4,399,138	$ 5,028	35.6%
Diabetes With Chronic Complications	556	$ 1,372,582	$ 2,469	$ 3,919,290	$ 7,049	35.0%
Renal	354	$ 987,681	$ 2,790	$ 2,847,380	$ 8,043	34.7%
Liver	268	$ 842,850	$ 3,145	$ 2,112,636	$ 7,883	39.9%
HIV/AIDS	16	$ 45,216	$ 2,826	$ 93,964	$ 5,873	48.1%
			$ 2,528.56		**$ 7,474.58**	**31.8%**

Chronic Condition Overlap

- In many of these condition-groups, CHF is a co-morbidity for half of all terminal patients

TOTAL Patients	**4245**	Congestive Heart Failure	Cancer	Vascular	COPD	Stroke	Diabetes With Chronic Complications	Renal	Liver	Acute Myocardial Infarction	Severe Hematological Disorders	HIV/AIDS
Congestive Heart Failure	1215	-----	24.4%	38.9%	39.4%	20.7%	25.4%	19.0%	8.6%	11.2%	4.2%	0.6%
Cancer	1054	28.2%	-----	28.9%	25.9%	14.8%	14.2%	7.5%	9.1%	3.6%	6.6%	0.7%
Vascular	917	51.6%	33.3%	-----	35.6%	25.0%	25.0%	16.7%	7.9%	8.7%	4.1%	0.2%
COPD	875	54.7%	31.2%	37.3%	-----	19.0%	18.7%	12.6%	7.3%	7.2%	3.9%	0.5%
Stroke	588	42.9%	26.5%	38.9%	28.2%	-----	24.5%	10.4%	4.9%	7.1%	3.9%	0.3%
Diabetes With Chronic Complications	556	55.6%	27.0%	41.2%	29.5%	25.9%	-----	24.5%	8.1%	10.8%	3.6%	0.0%
Renal	354	65.3%	22.3%	43.2%	31.1%	17.2%	38.4%	-----	13.3%	13.0%	5.1%	0.0%
Liver	268	38.8%	35.8%	26.9%	23.9%	10.8%	16.8%	17.5%	-----	6.0%	3.4%	1.9%
Acute Myocardial Infarction	196	69.4%	19.4%	40.8%	32.1%	21.4%	30.6%	23.5%	8.2%	-----	2.6%	0.5%
Severe Hematological Disorders	104	49.0%	67.3%	36.5%	32.7%	22.1%	19.2%	17.3%	8.7%	4.8%	-----	0.0%
HIV/AIDS	16	43.8%	43.8%	12.5%	25.0%	12.5%	0.0%	0.0%	31.3%	6.3%	0.0%	-----

Read row to column, e.g. 28.2% of cancer patients also have CHF

End of Life Cost to Hill: Number of Conditions

- Professional fees only – facility fees not included

Chronic Condition Count	Members	Cost last 30 days		Cost last 6 months		% in last 30 days
		Total	by patient	Total	by patient	
0	1507	$472,423.44	$ 313.49	$ 1,397,770.23	$ 927.52	33.8%
1	955	$ 1,360,780.27	$ 1,424.90	$ 4,679,101.04	$ 4,899.58	29.1%
2	818	$ 1,818,294.26	$ 2,222.85	$ 5,596,622.06	$ 6,841.84	32.5%
3	512	$ 1,253,404.88	$ 2,448.06	$ 3,837,968.65	$ 7,496.03	32.7%
4	306	$ 1,028,910.70	$ 3,362.45	$ 3,179,981.97	$ 10,392.10	32.4%
5+	147	$ 615,125.06	$ 4,184.52	$ 1,999,229.74	$ 13,600.20	27.9%
			$ 2,326.05		**$ 7,359.54**	**31.7%**

Case Stories

- Mr. W, M, 56, died 5/15/2015
  - Had highest number of inpatient days (171) in last 6 months of life
  - Died in hospital (LOS=46 days)
  - Chronic conditions: CHF, diabetes, stroke, & vascular disease
  - Cost in professional fees alone: $59,000 in last 6 months of life
- Mr. G, M, 90, died 9/1/2015
  - Had highest number of inpatient days (19) in last 30 days of life
  - Died in hospital after a week-long SNF stay, from pneumonia
  - Chronic conditions: CHF, COPD, stroke, cognitive impairment
  - Cost in professional fees alone: $10,000 in last 30 days of life

Useful outputs

Descriptive data

- # of unique decedents per disease group (SB1004 designated x 4, plus “all others”)
- Proportion male (if you wish)
- Ethnic distribution (if you wish)
- Proportion with multiple chronic conditions

Useful metrics

Calculated for population as a whole, and by disease group

National Quality Forum (NQF) endorsed measures (# and proportion of patients)

- Chemotherapy in last 14 days of life (cancer patients only)
- Not referred to hospice
- First referred to hospice < 3 days before death
- > 1 ED visit in the last 30 days of life

Useful metrics (continued)

Calculated for population as a whole, and by disease group

Other quality metrics

- In-hospital deaths (# and proportion of patients)
- Admitted to hospital in last 30 days of life (# and proportion of patients)
- Median days from first hospice referral to death
- # and % pts referred to specialist palliative care (SPC)
- # and % pts first referred to SPC < 90 days before death
- Median & mean days from first SPC referral to death

Useful metrics (continued)

Calculated for population as a whole, and by disease group

Other patient-level analyses describing utilization and costs

- Average # of ED visits per patient in 12, 6 and 1 month preceding death
- Average # of admits and hospital days per patient in 12, 6 and 1 month preceding death
- Average # of clinic visits per patient in 12, 6 and 1 month preceding death
- Average total costs per patient in last 12, 6 and 1 month preceding death

Useful metrics (continued)

Calculated for population as a whole, and by disease group

Analyses at encounter level

- Average LOS per admit, last six months of life and last month of life
- Average cost per admission, last six months of life and last month of life
- # 30-day re-admits (all cause) across last six months
- # 30-day mortality admits, (may be more than 1 for some patients)

Useful metrics (continued)

Calculated for population as a whole, and by disease group

Analyses of month-to-month trends

- ED visits, by month preceding death
- # of hospital admissions, by month preceding death
- ALOS per admission, by month preceding death
- Total bed days, by month preceding death
- Readmissions by month
- Costs per admission, by month
- Proportion patients enrolled in hospice, by month
- Average total cost per patient by month preceding death, last 12 months of life

Useful metrics (continued)

Calculated for population as a whole, and by disease group

Analysis of presentation timing

- Cumulative proportion of population clinically active by month, last 12 months
- Cumulative proportion of population with first ED visit or admission by month, last 18 months

Take-home points

- Its possible (and not too hard) to combine plan data with a death data file to identify a population of decedents
- Data about utilization patterns and costs can inform educational/outreach planning, processes for promoting referrals, and provide a snapshot of baseline performance (quality and costs)

Resources … and your questions

- Methods and metrics for decedent analysis
- CDPH Public Use Death Data File FAQ

BREAK!

Lessons from the literature, field and additional considerations

Lessons and other considerations

1) Most decedents need PC in the final year of life

2) Many individuals who need extra support won't meet SB1004 criteria

3) Condition + functional limitation + utilization predicts high cost / high need

4) Coordination with referring providers and PC teams is needed to ID pts and promote (appropriate)referrals

5) Many studies have shown that PC reduces utilization/costs, but there are few studies of PC impact in an impoverished, complex population

Lesson #1

Most decedents need some kind of palliative care in the final year of life

Original Article

PALLIATIVE MEDICINE

Palliative Medicine
2014, Vol 28(1) 49–58

DOI: 10.1177/0269216313489367
pmj.sagepub.com
SAGE

How many people need palliative care? A study developing and comparing methods for population-based estimates

Fliss EM Murtagh[1], Claudia Bausewein[2], Julia Verne[3], E Iris Groeneveld[1], Yvonne E Kaloki[1] and Irene J Higginson[1]

Abstract

Background: Understanding the need for palliative care is essential in planning services.

Aim: To refine existing methods of estimating population-based need for palliative care and to compare these methods to better inform their use.

Design: (1) Refinement of existing population-based methods, based on the views of an expert panel, and (2) application/comparison of existing and refined approaches in an example dataset. Existing methods vary in approach and in data sources. (a) Higginson used cause of death/symptom prevalence, and using pain prevalence, estimates that 60.28% (95% confidence interval = 60.20%–60.36%) of all deaths need palliative care, (b) Rosenwax used the *International Statistical Classification of Diseases and Related Health Problems–10th Revision* (*ICD-10*) causes of death/hospital-use data, and estimates that 37.01% (95% confidence interval = 36.94%–37.07%) to 96.61% (95% confidence interval = 96.58%–96.64%) of deaths need palliative care, and (c) Gómez-Batiste used percentage of deaths plus chronic disease data, and estimates that 75% of deaths need palliative care.

Setting/participants: All deaths in England, January 2006–December 2008, using linked mortality and hospital episode data.

Results: Expert panel review identified changing practice (e.g. extension of palliative care to more non-cancer conditions), changing patterns of hospital/home care and multiple, rather than single, causes of death as important. We therefore refined methods (using updated *ICD-10* causes of death, underlying/contributory causes, and hospital use) to estimate a minimum of 63.03% (95% confidence interval = 62.95%–63.11%) of all deaths needing palliative care, with lower and upper mid-range estimates between 69.10% (95% confidence interval = 69.02%–69.17%) and 81.87% (95% confidence interval = 81.81%–81.93%).

Conclusions: Death registration data using both underlying and contributory causes can give reliable estimates of the population-based need for palliative care, without needing symptom or hospital activity data. In high-income countries, 69%–82% of those who die need palliative care.

Estimating PC need in a population

Murtagh FEM et al, *How many people need palliative care? A study developing and comparing methods for population-based estimates*. Palliat Med. 2014 Jan;28(1):49-58.

- Reviewed several approaches used in Europe / Australia
- Developed a new approach that uses four methods to estimate need
- Estimates are based on death certificate data +/- hospital utilization data
- Applied definitions / criteria to several years of death records from UK
- Generated estimates of proportion of all decedents who might need PC, using each of the 4 methods

Minimal estimate

Primary cause of death from any of 10 conditions with high probability of PC need

1. Cancer
2. Heart disease (chronic)
3. Cerebrovascular disease (stroke)
4. Renal disease (chronic renal failure)
5. Liver disease
6. Respiratory disease (chronic lung disease)
7. Respiratory disease (respiratory failure)
8. Neurodegenerative diseases
9. Dementia, Alzheimer's
10. HIV/AIDS

Minimal estimate = 63% of all deaths

Lower mid-range estimate

Deaths where the individual was hospitalized with the same condition as the cause of death, in the year preceding death

Lower mid-range estimate = 69% of all deaths

Upper mid-range estimate

Deaths with any mention on the death certificate of one of the 10 conditions (primary, underlying or contributory cause of death)

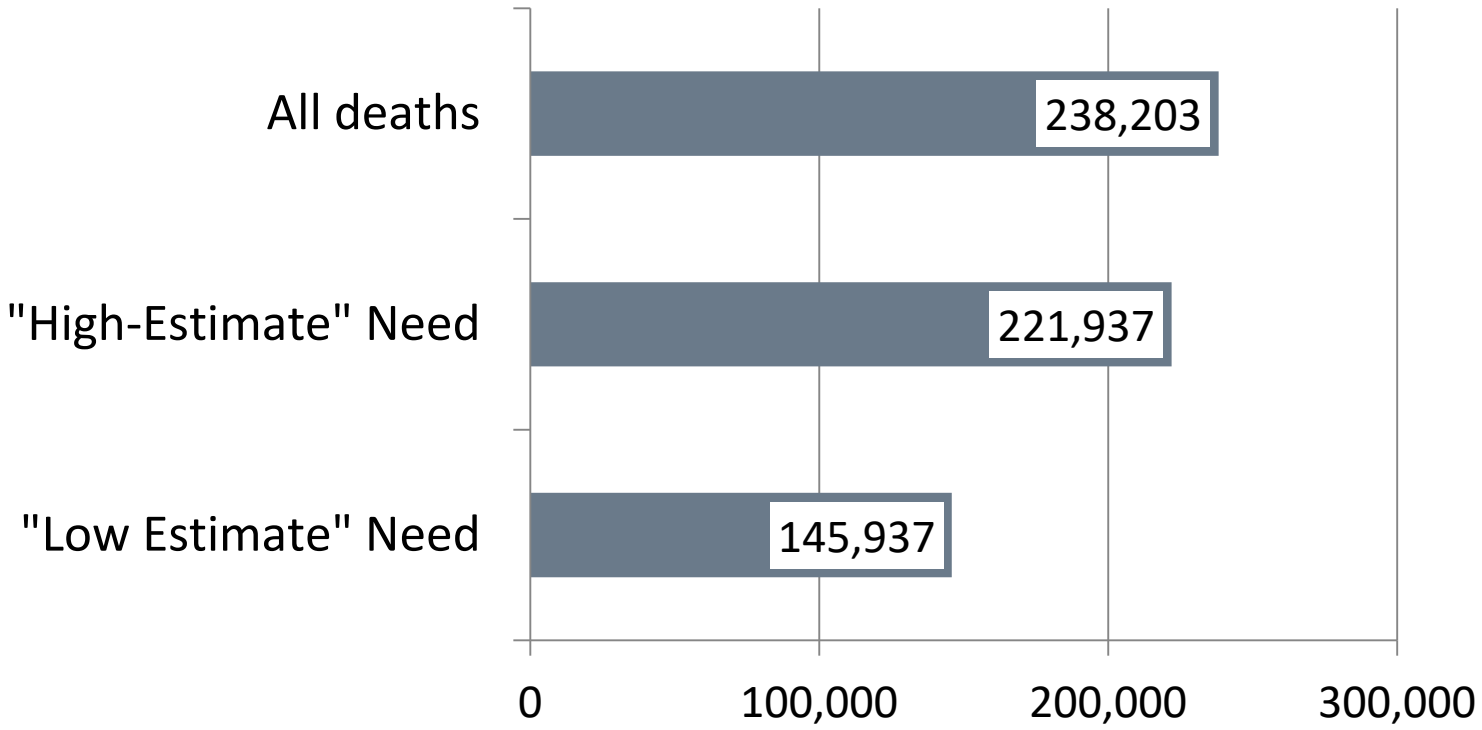
Upper mid-range estimate = 83% of all deaths

Maximal estimate

All deaths apart from poisoning, injury, maternal, neonatal or perinatal deaths

Maximal estimate = 97% of all deaths

Estimating Need: Low-High Estimates for California

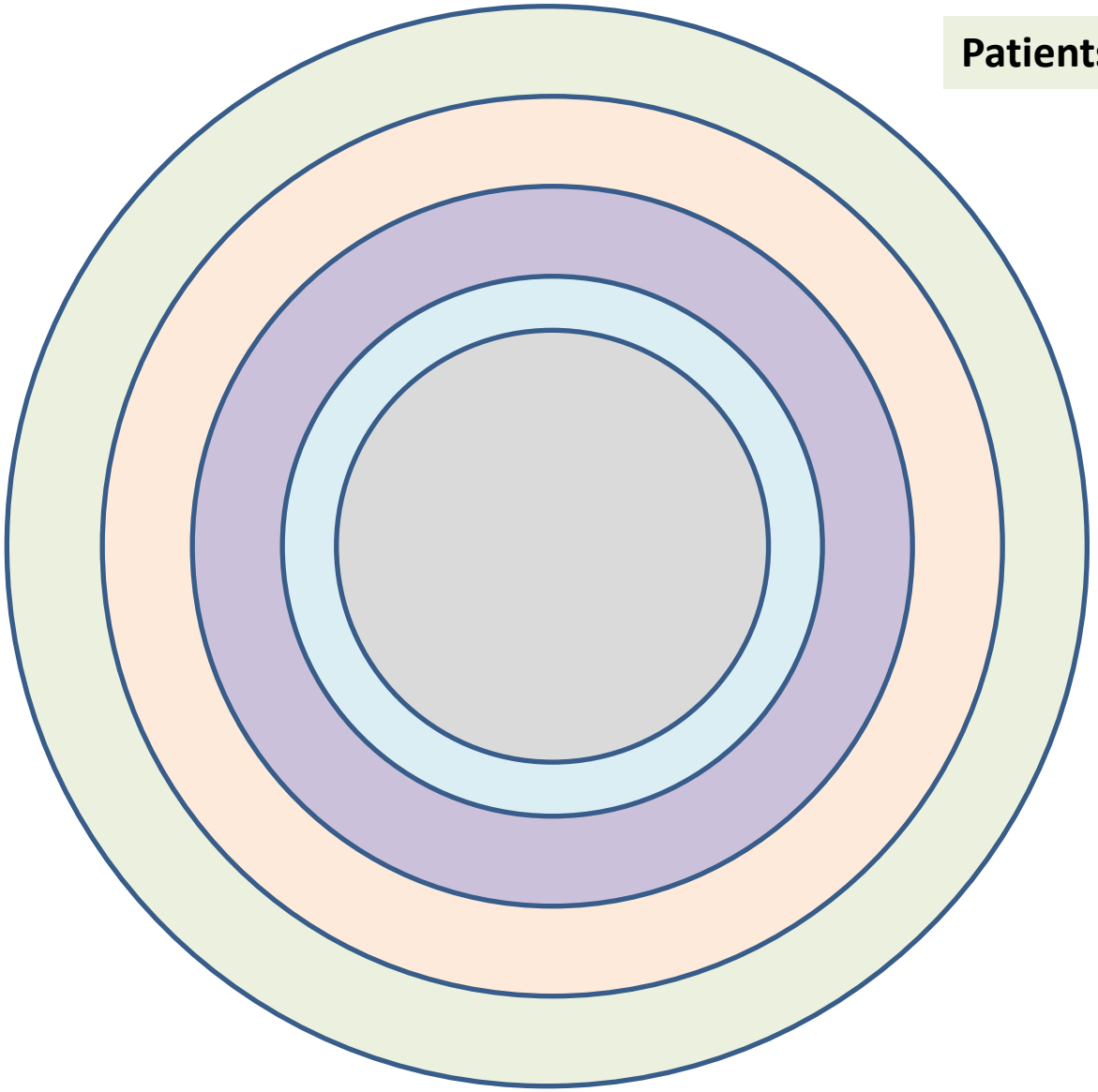


Low- estimate of need = 61% of all deaths
High-estimate of need = 93% of all deaths

Lesson #2

Many individuals who need extra support won't meet SB1004 criteria

SB1004 Population in Context



Patients who would benefit from PC

Patients with SB1004 conditions

SB1004 eligible patients

Eligible patients who are referred/identified

Patients who are able / willing to accept services

Meeting the needs of the those who don't qualify

- Many individuals referred to PC services in CHCF PPI initiative (including PHP PIPC pilot) had PC needs, but did not meet inclusion criteria
- Determination of qualification difficult to do without an in-person assessment
  - FFS assessment fee to offset effort of PC team
- Even if accepted, created high burden on PC teams from care coordination, assisting with social needs
- Other, existing programs can be referred to?
- We need to be mindful of this population: how to meet their needs, now to not over-burden the PC teams, how to deliver what pts/families need in a cost effective/sustainable way

Lesson #3

Condition + functional limitation + utilization predicts high cost / high need

HSR Health Services Research

DOI: 10.1111/1475-6773.12479
RESEARCH ARTICLE

Identifying Older Adults with Serious Illness: A Critical Step toward Improving the Value of Health Care

Amy S. Kelley, Kenneth E. Covinsky, Rebecca J. Gorges, Karen McKendrick, Evan Bollens-Lund, R. Sean Morrison, and Christine S. Ritchie

Objective. To create and test three prospective, increasingly restrictive definitions of serious illness.

Data Sources. Health and Retirement Study, 2000–2012.

Study Design. We evaluated subjects' 1-year outcomes from the interview date when they first met each definition: (A) one or more severe medical conditions (Condition) and/or receiving assistance with activities of daily living (Functional Limitation); (B) Condition and/or Functional Limitation *and* hospital admission in the last 12 months and/or residing in a nursing home (Utilization); and (C) Condition *and* Functional Limitation *and* Utilization. Definitions are increasingly restrictive, but not mutually exclusive.

Data Collection. Of 11,577 eligible subjects, 5,297 met definition A; 3,151 definition B; and 1,447 definition C.

Principal Findings. One-year outcomes were as follows: hospitalization 33 percent (A), 44 percent (B), 47 percent (C); total average Medicare costs $20,566 (A), $26,349 (B), and $30,828 (C); and mortality 13 percent (A), 19 percent (B), 28 percent (C). In comparison, among those meeting no definition, 12 percent had hospitalizations, total Medicare costs averaged $7,789, and 2 percent died.

Predictors of high cost / high need

11,557 Medicare beneficiaries, Health and Retirement Study 2000-2012, 1 year outcomes

Condition: One or more severe medical conditions

Functional Limitation: Receiving assistance with ADLs

Utilization: Hospital admission in last 12 months or nursing home resident

A: Condition and / or Functional Limitation

B: Condition and / or Functional Limitation and Utilization

C: Condition and Functional Limitation and Utilization

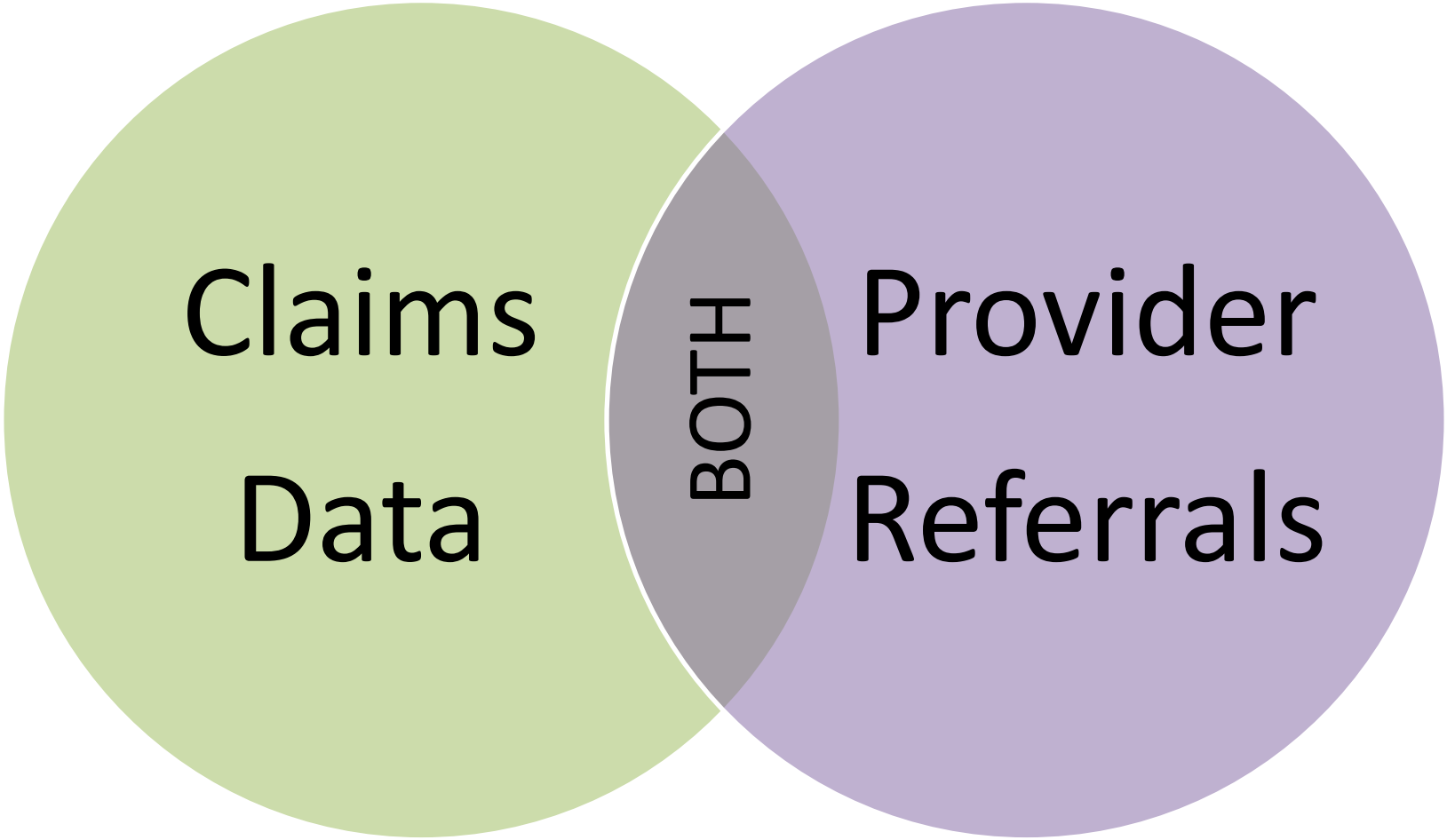
Predictors of high cost / high need

Group	Hospitalization	Medicare costs	Mortality
Condition and / or Functional Limitation	33%	$20,566	13%
Condition and / or Functional Limitation and Utilization	44%	$26,349	19%
Condition and Functional Limitation and Utilization	47%	$30,828	28%

Lesson #4

Coordination with referring providers and PC teams is needed to ID pts and promote (appropriate)referrals

Identifying patients: supporting referrals



Identifying patients: supporting referrals

- Examples: dx, DME, utilization, costs
- PROS: (relatively) low effort, complete
- CONS: not all criteria in admin data, no indication of patient need/interest; referring provider out of loop

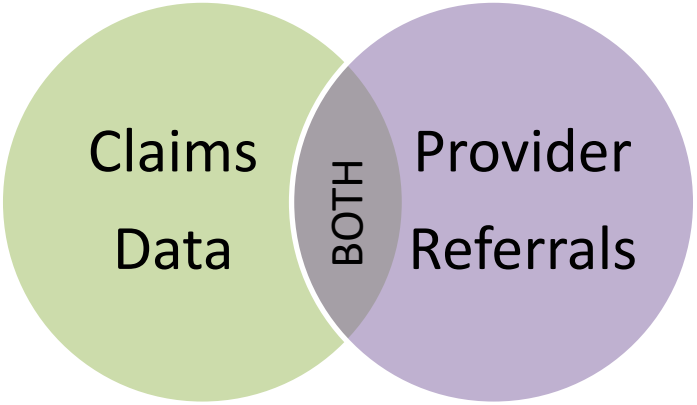
Identifying patients: supporting referrals

- PROS: alignment on need/goals, clearer sense of need, leverage relationships
- CONS: incomplete capture, depends on time / attitude, burden on staff, requires on-going education

Identifying patients: supporting referrals

Hybrid (claims + screening + referring providers)

- PROS: most complete and highest acceptance rate
- CONS: effort



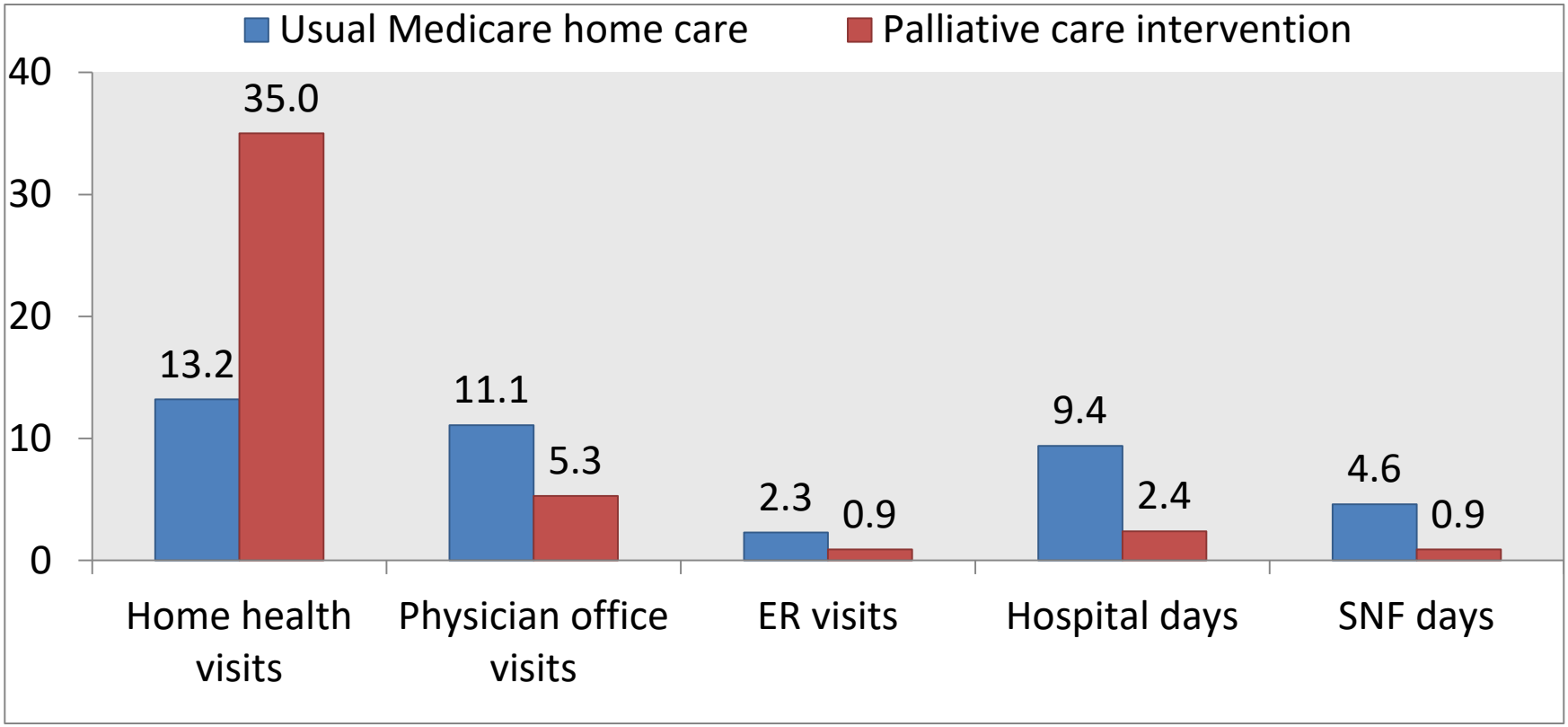
Lesson #5

Many studies have shown that PC reduces utilization/costs, but there are few studies of PC impact in an impoverished, complex population

Home-PC changes setting of care

RCT: Palliative Care at Home for the Chronically Ill

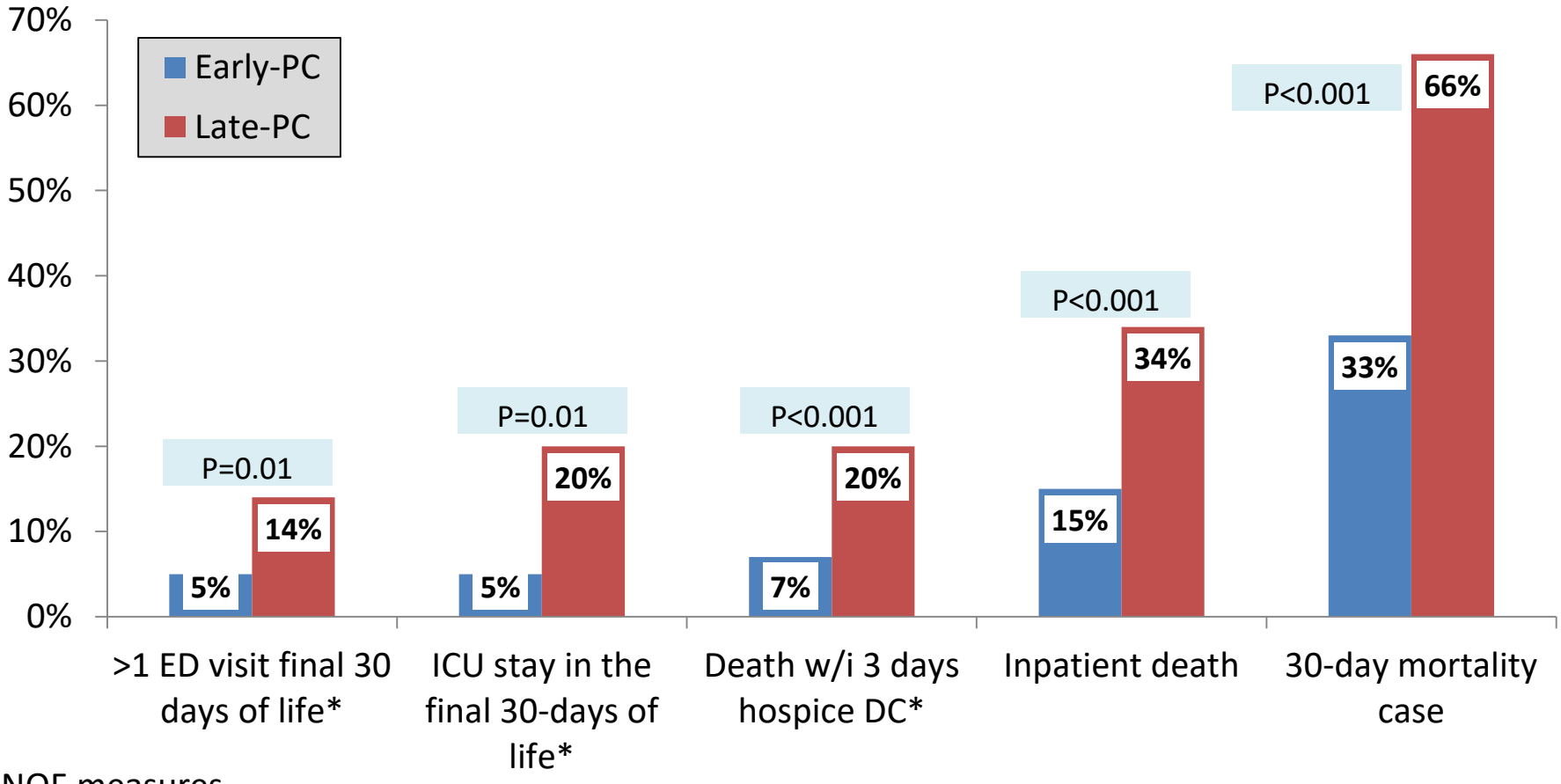
RCT of Service Use Among Heart Failure, Chronic Obstructive Pulmonary Disease, or Cancer Patients While Enrolled in a Home Palliative Care Intervention or Receiving Usual Home Care, 1999–2000



Brumley R et al, Increased Satisfaction with Care and Lower Costs: Results of a Randomized Trial of In-Home Palliative Care, J Am Geriatr Soc. 2007 Jul;55(7):993-1000

Early access = improved outcomes

UCSF: 297 cancer patients, 204 with Late-PC (first contact within 90 days of death), 93 with Early-PC (first contact >90 preceding death)



*NQF measures

Scibetta C, Kerr K, Mcguire J, Rabow MW. *The Costs of Waiting: Implications of the Timing of Palliative Care Consultation among a Cohort of Decedents at a Comprehensive Cancer Center*. J Palliat Med. 2016 Jan;19(1):69-75.

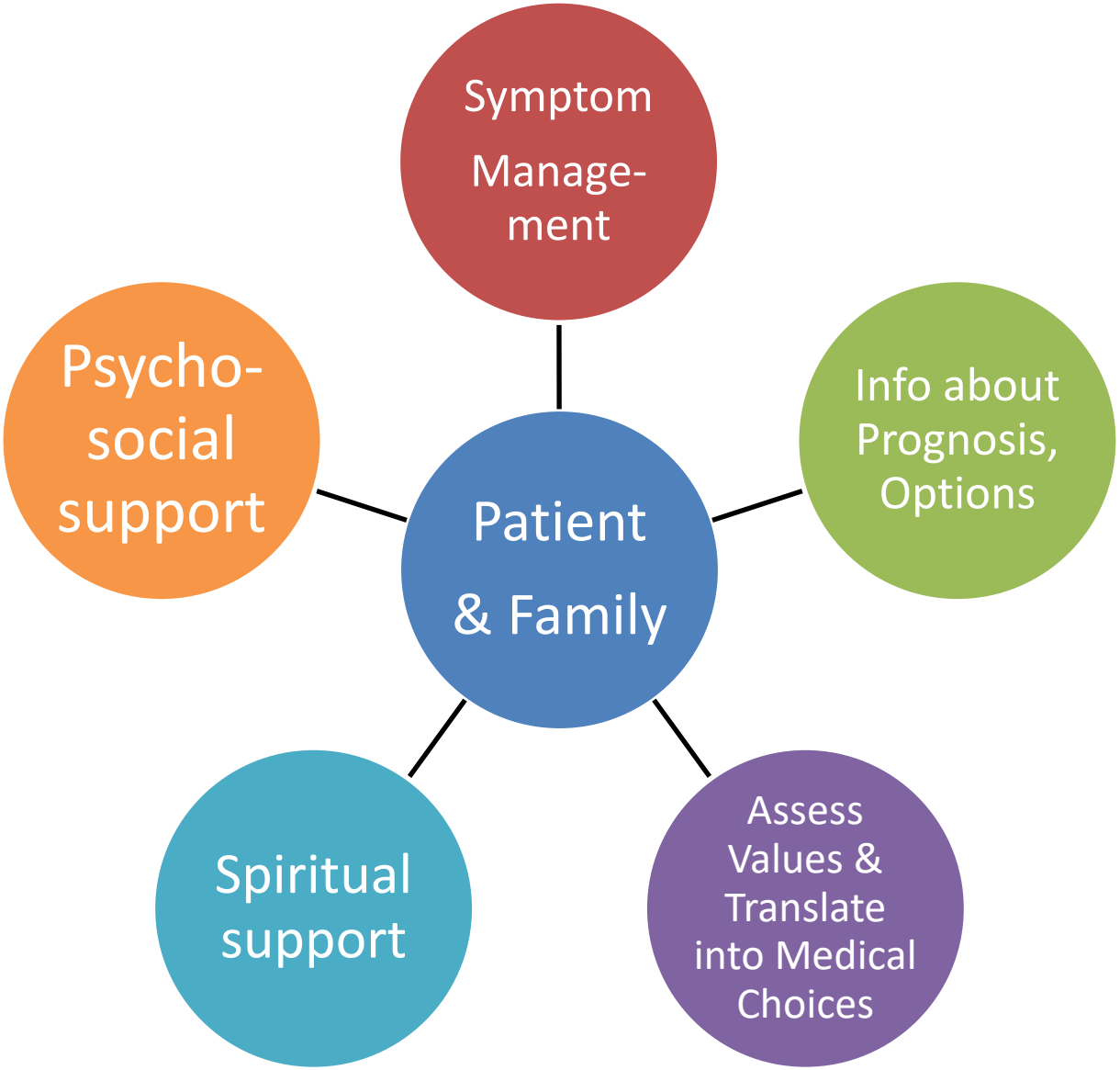
Lower costs across disease groups

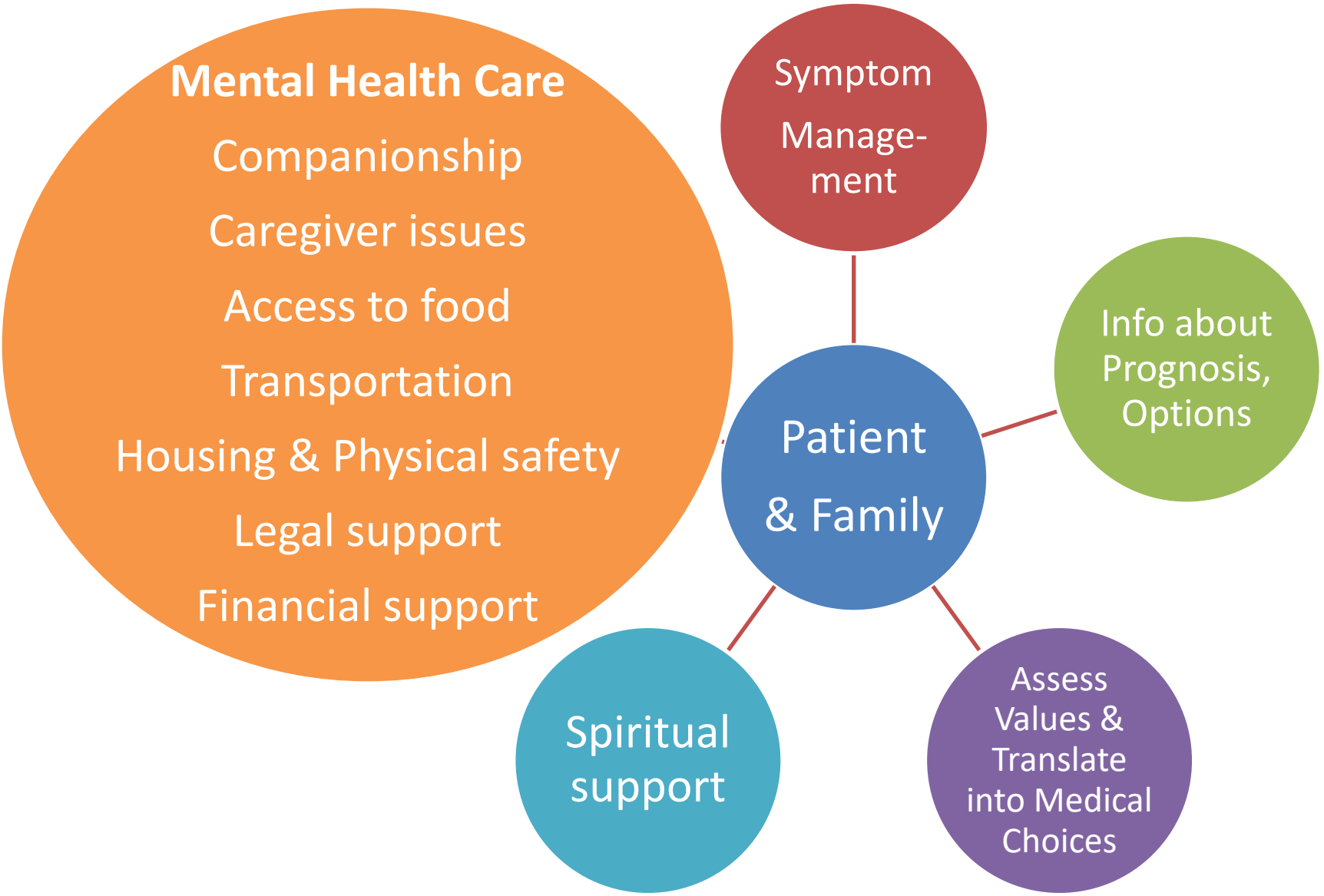
- Home-based PC for patients with Ca, CHF, COPD, dementia
- Fiscal and utilization outcomes for patients who received PC compared to outcomes for matched controls
- Medicare advantage population
- Net savings (after PC program costs) per patient per month:
  - Cancer: $4,258
  - COPD: $4,017
  - CHF: $3,447
  - Dementia: $2,690

Brumley RCT 2007 (CHF, Ca, COPD): $4,535 net savings per patient per month in 2014 dollars

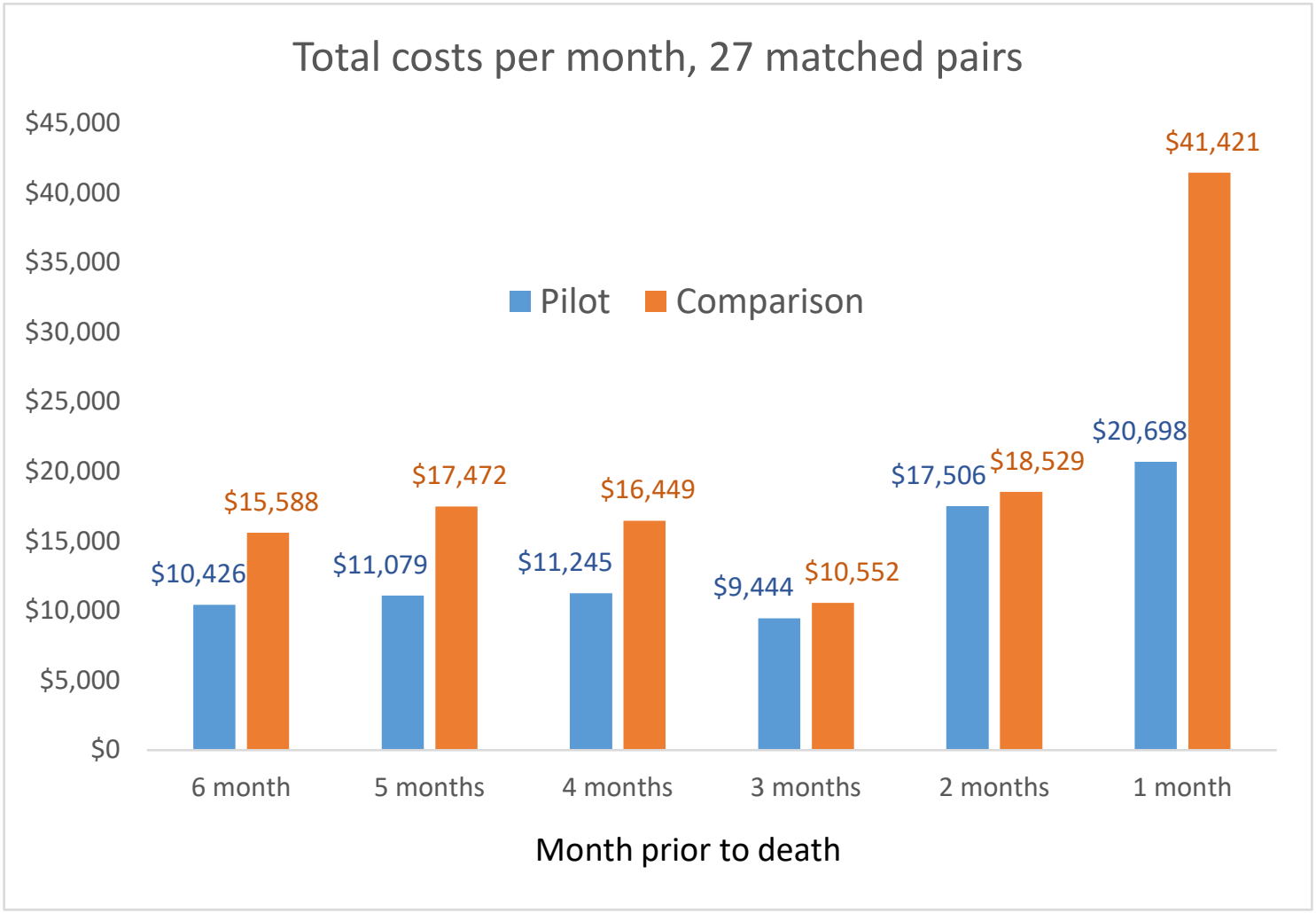
Cassel JB, Kerr KM, McClish DK, Skoro N, Johnson S, Wanke C, Hoefer D. Impact of a home-based palliative care program on healthcare utilization and costs. *Journal of the American Geriatrics Society 2016* November; 64(11): 2288–2295. PMID: 27590922 DOI: 10.1111/jgs.14354 (open access!)

Typical Palliative Care Focus




Mental Health Care
Companionship
Caregiver issues
Access to food
Transportation
Housing & Physical safety
Legal support
Financial support
Symptom Manage-ment
Info about Prognosis, Options
Patient & Family
Spiritual support
Assess Values & Translate into Medical Choices

PHP PC Pilot:
Total costs in final 6 months of life



27 matched pairs with full 6 months PHC data prior to death. Pilot enrollment was 90 days prior to death on average.

Lessons review

1) Most decedents need PC in the final year of life, but not everyone needs home-based specialty PC

2) Many individuals who need extra support won't meet SB1004 criteria – how do we help them?

3) Condition + functional limitation + utilization predicts high cost / high need

4) Coordination with referring providers and PC teams is needed to ID patients and promote (appropriate)referrals

5) Many studies have shown that PC reduces utilization/costs, but there are few studies of PC impact in an impoverished, complex population – aiming for cost neutral could be wise

Questions and discussion

Closing, action plan, resource review and your wish lists

Workshop objective #1

Describe SB1004 eligibility criteria and why estimating # of eligible patients/members and their baseline utilization patterns is useful, but potentially difficult

- It's a super sick population
- A subset of eligible patients will receive services
- The nature of the criteria and issues with data access/resources can complicate analyses
- Estimates and baseline data can be helpful with program planning

Workshop objective #2

Describe a method for estimating the number of patients/members who would qualify for SB1004 based on current plan enrollment

- Criteria based on qualifying dx, evidence of advanced disease, patient/family preferences
- Data sources= claims/authorization/pharmaceutical data, EHR, screening/assessment findings
- If you only have access to claims / authorization /pharmaceutical data you can still get at evidence of advanced disease, but not patient/family preferences

Workshop objective #3

Describe a retrospective method for estimating the number of eligible patients/members in a given year

- Combine plan data with CDPH death data file
- Because working with decedent population no need to worry about indicators of advanced disease
- Can consider at what point in disease course patients likely became SB1004 eligible, to inform estimates of possible duration of services

Workshop objective #4

Identify potentially useful data points from a decedent analysis

- Frequency, duration, intensity of hospitalizations, total and trended
- Frequency and timing of ED visits
- 30-day readmissions
- In-hospital and 30 day deaths
- Clinic visits (and use of other outpatient/home-based services of interest)
- Use and timing of specialty PC
- Use and timing of hospice
- Cost of care, total and trended

Workshop objective #5

Consider lessons from the literature and the field

- The majority of decedents need PC in the final year of life
- Think about those who may need PC (an extra layer of support) but do not meet SB1004 criteria
- Condition plus functional limitation plus utilization is a good predictor of high cost/high need
- Coordination with referring providers and PC teams is needed to ID pts and promote (appropriate)referrals
- Many studies have shown that PC reduces utilization/costs, but there are few studies of PC impact in an impoverished, complex population – impact needs to be studied

Workshop objective #6

Identify local data sources and individuals within your organization who would do this work

Please take 10 minutes to complete the Action Plan worksheet

Will you do this?

Who will do this?

Data sources?

Timeline?

Workshop objective #7

Review resources and identify additional materials that might facilitate SB1004 implementation

- SB1004 web site: http://www.dhcs.ca.gov/provgovpart/Pages/Palliative-Care-and-SB-1004.aspx
- Diagnosis codes (Excel spreadsheet file)
- Crosswalk eligibility criteria to claims data
- Estimating # eligible members based on current enrollment
- Method and metrics for decedent analysis
- CDPH Public Use Death Data File FAQ
- Roster of Topic 1 Workshop attendees (all three offerings)

Future webinar/workshop topics

2. **Estimating the cost of providing home and clinic-based PC.** [Expected audience: administrative and financial staff from delegated health systems and PC provider organizations]

3. **Evaluating current network/group capacity to provide PC**, including required supports for delivering SB1004 defined services, potential primary PC providers, identifying existing specialty resources, and methods for quantifying the gap between current capacity and need. [Expected audience: clinical and administrative staff from MCPs and delegated health systems]

4. **Developing and implementing a strategy to fill the gaps**, including strategies for identifying eligible patients and promoting appropriate and timely referrals. [Expected audience: teams with representation from an MCP or delegated health system, and affiliated or external PC providers]

5. **Gauging and promoting success**, including: defining success and selecting metrics; quality assessment and improvement activities; moving from a pilot program to a sustained service; and integration with the larger health system/delivery network. [Expected audience: teams with representation from an MCP or delegated health system, and affiliated or external PC providers]

Focus on plan needs

Would you be interested in brief write-ups addressing the following topics?

- **Analytics** – diagnosis codes (enough support after today?)
- **Business case** – projecting impact
- **Pricing** – rates for services, and which services
- **Contracting** – what to include, what not to include
- **Legal** – PC vs hospice regulations and standards
- **Claims configuration** – how to structure codes so can process claims without extensive manual support

Your confidence

How confident are you that you could develop and implement a strategy for 1) estimating the number of patients who might be eligible for SB1004 PC, and 2) appreciating baseline utilization patterns and costs in this population, to inform developing a business case?

- ❑ We're already on it – practically done now
- ❑ We are part way there, and feel confident that we can develop and implement a plan
- ❑ Seems it might be useful but I'm not confident we'll get to this any time soon
- ❑ I have no idea what you are referring to

Acknowledgements, and your questions

Thanks to our colleagues who shared their knowledge (and/or data)

- Heather Harris, MD, Zuckerberg San Francisco General
- J Brian Cassel, PhD, Virginia Commonwealth University
- Torrie Fields, Blue Shield of CA
- Terry Hill, MD and Michael Kersten, MPH, Hill Physicians Medical Group
- Jim Glauber, MD and the San Francisco Health Plan analytic team

Questions about the SB1004 Technical assistance series?

- Glenda Pacha gpacha@chcf.org
- www.chcf.org/sb1004

Workshop slides and worksheets will be available for download on the CHCF SB1004 resource page: www.chcf.org/sb1004