Pharmacists Providing Palliative Care Services: Demonstrating a Positive Return on Investment

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Background

- One rate limiting factor of the quality and financial impact a Palliative Care consult service can have in a healthcare system is the number of Providers available to deliver care.
- Adding a PharmD position to the team is often overlooked as a viable solution.
- A PharmD can serve as a medication expert, influence prescribing trends, increase medication safety, and in most states they can enter into a Collaborative Practice Agreement with Physicians. This enhances the Pharmacist's ability to practice at the top of their license and serve as an extension of Provider services.
- Considering integration of a PharmD onto Palliative Care teams mandates the establishment of a ROI for such positions.

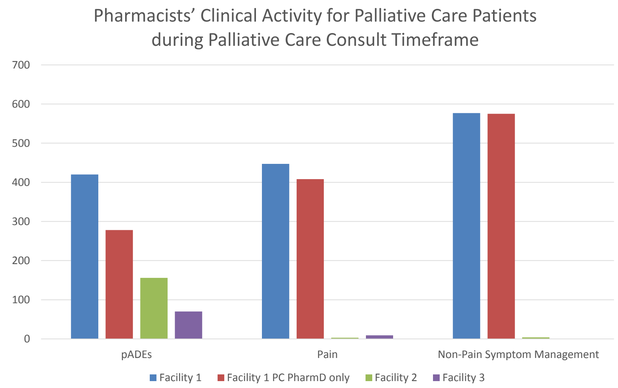
Methods

- A 16-month retrospective review was done involving Palliative Care patients at a 650 bed tertiary medical center.
- ROM calculations were assigned based on a proprietary software algorithm that assessed a number of different coded attributes for patient characteristics and socioeconomic factors (e.g. age, DRG, sex, income, primary diagnosis, comorbidities, facility type etc.).
- Information regarding clinical pharmacists' activity, identification of preventable adverse drug events (pADEs), and the management of symptoms by the PharmD was gathered from the electronic medical record (EMR).
- Demographic comparison of patients and also the pharmacists' clinical activity was performed between 3 facilities in the health system with active Palliative Care teams. Facility 1 had an integrated PharmD Palliative Care team member. Facility 2 was found to be most comparable overall to Facility 1 and was therefore used for comparison.
- For Palliative Care patients during the Palliative Care consult period, statistical analysis was performed looking at the number of pADEs identified by PharmDs at the two facilities.
- A ROI was calculated using a literature-based cost for pADEs in a hospitalized patient and Provider time saved.

Results

Baseline Comparison

Facility	ROM(%)	Pharmacist Clinical Activity/Hospital Admission	Average Pt Age
1	23.97	2.88	67
2	21.19	4.46	78
3	19.84	3.01	77



Results

Symptom Distribution

Symptom	Occurrence	Percentage of Total
Pain	408	41
Delirium	177	18
Constipation/OIC prophy	120	12
Nausea/Vomiting	100	10
Dyspnea	84	8
Secretions	30	3
Other	30	3
Anxiety	20	2
Depression	18	2
Insomnia	18	2

OIC=opioid-induced constipation

Statistical Analysis

	Facility 1				Facility 2	
Unique Pts with any Pharmacist Activity	844				816	
	Non Pall Care Pharmacists	Pall Care Pharmacist Only	Pall Care Pharmacist + other Pharmacists	P Value	Non Pall Care Pharmacists	P Value
Number pADEs	54	278	366		184	
Unique Pts with any Pharmacist Activity	144	700				
Rate of pADEs in Pts with any Pharmacist Activity (# pADE/unique pts with any pharm activity)	*0.375	0.397	*0.523	*0.001	0.225	<0.001
Unique Pts with at least 1 pADE	97	54	151		122	
Rate of pADEs in pADE Subset (# pADEs/#unique pts w/ pADEs)	*0.56	5.14	*†2.42	*<0.001	†1.5	†<0.001

*comparison of Facility 1 Non Pall Care Pharmacists and Pall Care Pharmacist + other Pharmacists

†comparison of Facility 1 Pall Care Pharmacist + other Pharmacists and Facility 2 Non Pall Care Pharmacists

Logistic Regression

Variable	OR	P Value
Facility	1.39	0.007
Age	1.02	<0.001
Pall Care PharmD	5.06	<0.001
Mortality	0.74	0.268

- There was a statistically significant difference in rates of pADEs between all pharmacists at the facility with a Palliative Care PharmD compared to all pharmacists at the comparator facility without a Palliative Care PharmD. This difference remained when rates were compared in a subset of unique patients with at least 1 pADE identified.
- At the facility with a dedicated Palliative Care PharmD, there was a statistically significant difference in rates of pADEs between non-Palliative Care Pharmacists and the Palliative Care Pharmacist plus all other Pharmacists.
- By logistic regression, the Palliative Care Pharmacist was 5 times more likely to identify a pADE regardless of facility or patient age.
- A ROI of $1,177,298 per year was calculated based on identification of pADEs and symptom management care rendered by the Palliative Care PharmD as an extension of Provider services .

Results

Return on Investment

Description of Activity	ROI ($/yr)
Extension of Provider Services for Symptom Management (pain and non pain)	101,280
pADEs	1,076,018 (based on 1993 estimate) 2,797,647 (based on 2015 estimate)
TOTAL ROI**	**1,177,298 (based on 1993 estimate pADEs)** **2,898,927 (based on 2015 estimate pADEs)**

**Additional contributions to ROI with no current methodology to track include decreased LOS, avoided ED visits and 30 day hospital readmissions

Discussion

- After the adjustment for 2 issues identified, the rates of clinical pharmacist activity were much more comparable than the raw numbers shown. At Facility 1, OB patients were included and there is very little clinical pharmacist activity generated by this patient population. At Facility 2, for the majority of this study time frame, there was double documentation occurring for one of the clinical activity categories.
- In the 2007 Institute of Medicine publication "Preventing Medication Events: Quality Chasm Series" the cost of a pADE in a hospitalized patient in 1993 was reported to be $5900. The gross domestic product in 1993 was $6878 compared to $17947 in 2015. This resulted in an inflation factor of 2.6. When applied to the cost of a pADE in a hospitalized patient this equated to a cost of $15340 per pADE in 2015.
- By having the PharmD manage symptoms in the Palliative Care population, it would afford the Physician about 12 weeks/year of time to focus on complex medical goal setting and diagnosis. At 4 patients/day this equates to 240 patients/yr. At a mean billable of $422/ patient this equates to $101,280 of revenue generated annually.
- Considering a conservative calculation to account for the difference between Physician and PharmD's salary, an additional $20,000 could be attributed to the ROI calculation but was not included here.
- Another contributor to ROI that as not included here is cost savings realized for reduced LOS and avoided ED visits and readmissions. There is currently no means to electronically capture Pharmacists' clinical activities in these areas.

Conclusions

- From a fiscal, quality and patient-driven perspective, there is an unmet need for Providers in Palliative Care.
- In 2015 only 8.9% of all PC teams reporting into CAPC National registry reported having a Pharmacist involved on their team.
- A PharmD has unique qualifications and can contribute to the quality and value of care provided to a Palliative Care patient and their family in ways that are currently unsatisfied because this discipline's perspective is left out of the care equation.
- Based on the results of this analysis, there is a minimum ROI of $1,177,298 per year demonstrated for a Palliative Care PharmD. This more than justifies the annual salary and should validate acquisition of PharmD positions for Palliative Care teams nationally.

References

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