

Impact of a Pharmacist-Driven Intervention Tool on Adherence to Guidelines Related to the use of Bone Modifying Agents (BMAs) in Patients with Advanced Solid Tumor Malignancies with Metastatic Disease to the Bone

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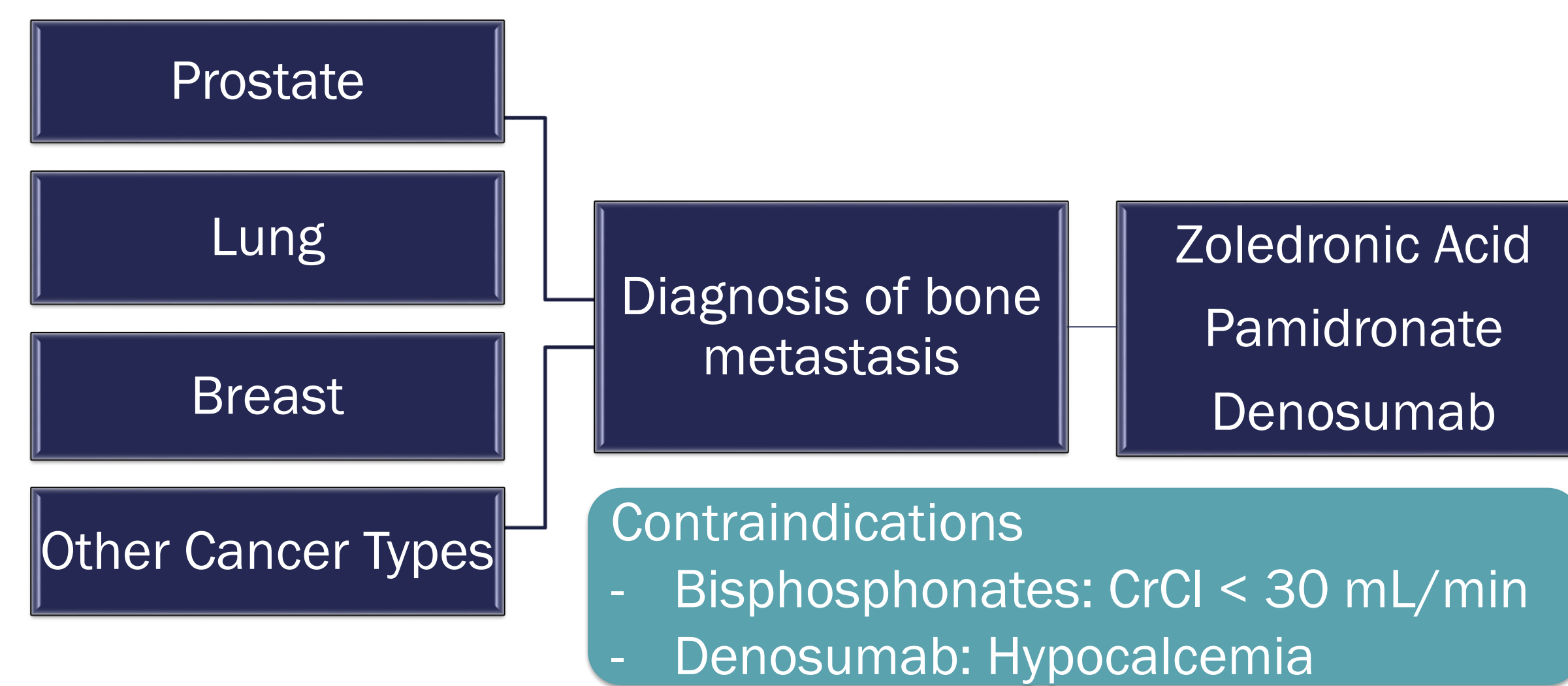
BACKGROUND

- Any solid tumor malignancy can metastasize to the bone, but the most common solid tumor types associated with bone metastases are prostate, lung, and breast.¹
- Skeletal-related events are major complications associated with bone metastases.²
- The primary clinical use of bone modifying agents (BMAs) is to reduce the incidence of skeletal-related events.¹⁻²
- Numerous studies support the clinical benefit of BMAs on decreasing skeletal-related events, so use has increased in patients with solid tumor malignancies metastatic to the bone.²

Guideline Recommendations:³⁻⁵

American Society of Clinical Oncology (ASCO)

National Comprehensive Cancer Network (NCCN)



- Recognizing an opportunity to improve adherence to guideline recommendations on initiating BMAs, a pharmacist-driven intervention tool was implemented at the Norton Cancer Institute on September 21, 2020.
- The tool assists pharmacists in identifying patients who may benefit from initiation of BMA therapy.

PURPOSE

To quantify the impact of a pharmacist-driven intervention on adherence to guideline recommendations and standards for the initiation of BMAs.

OBJECTIVES

- Primary:** Compare the rate of adherence to guideline-directed BMA therapy in each group
- Secondary:** time from bone metastases diagnosis to BMA initiation, rationale for BMA non-initiation, and to identify at-risk patient populations for treatment non-adherence to BMA guidelines

METHODS

IRB-exempt pre/post intervention, retrospective, cohort study of 200 patients (18-89 years of age) with a diagnosis of a solid tumor malignancy and metastatic disease to the bone as defined by ICD-10 codes who were candidates for a BMA.

- Pre-cohort: August 1, 2019 to September 20, 2020
 - Post-cohort: September 21, 2020 to January 31, 2021
- Patients were excluded if they were prisoners, pregnant, or involved in an investigational study.

RESULTS

Figure 1. Patient Enrollment

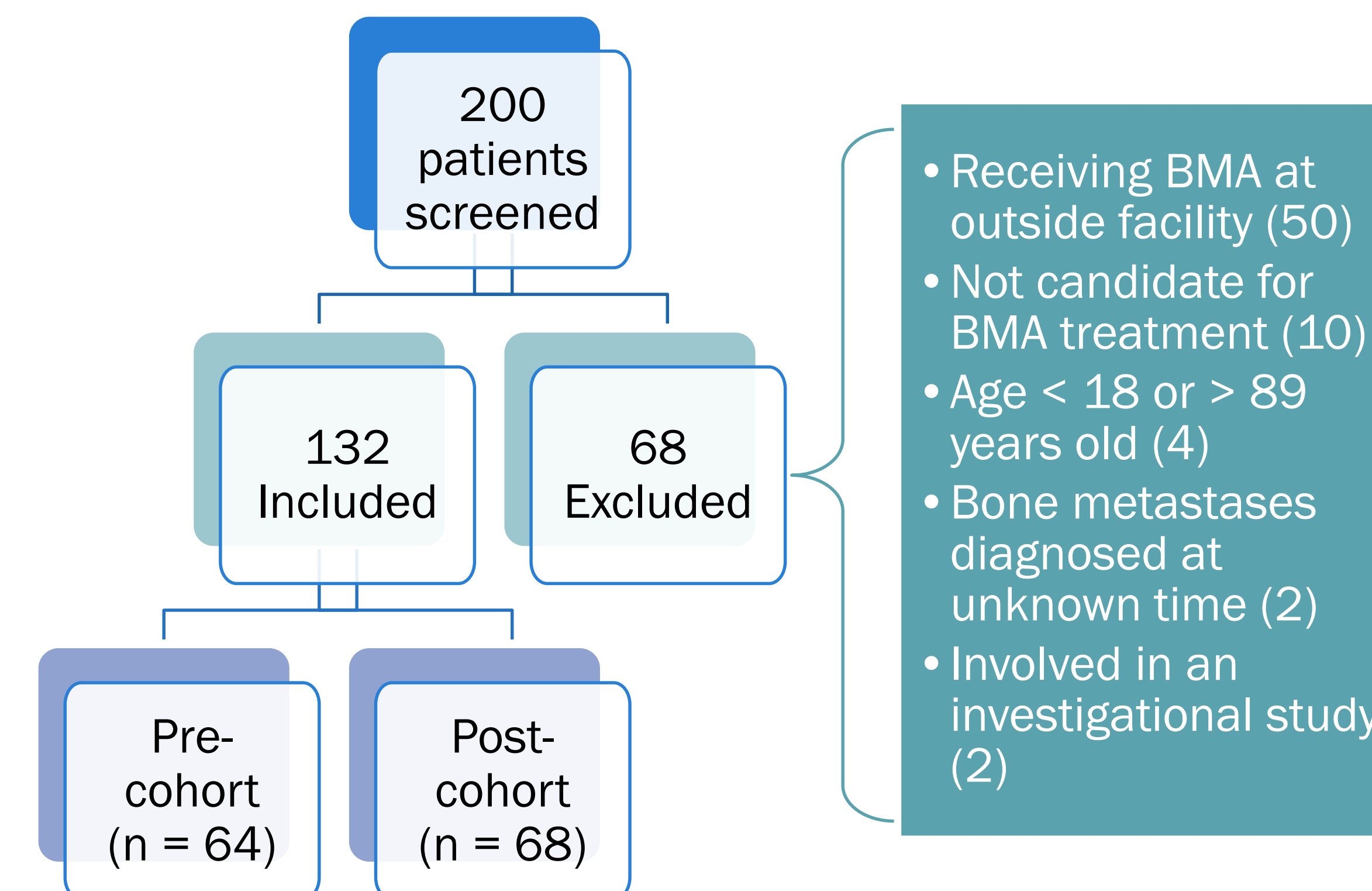


Table 1. Patient Demographics

	Pre-cohort (n = 64)	Post-cohort (n = 68)	p-value
Age – mean (SD)*	66.1 (12.6)	65.1 (9.8)	0.613
Sex, Male – n (%)	36 (56)	33 (49)	0.389
Race – n (%)			0.613
Asian	1 (2)	1 (1)	
Black or African American	6 (9)	14 (21)	
Hispanic or Latino	4 (6)	3 (4)	
White	53 (83)	48 (71)	
Other	0 (0)	2 (3)	
NCI^ Clinic – n (%)			
NCI Audubon	13 (20)	13 (19)	
NCI Brownsboro	8 (12)	14 (21)	
NCI St. Matthews	14 (22)	15 (22)	
NCI Downtown	17 (27)	13 (19)	
NCI Corydon	7 (11)	2 (3)	
NCI Jeffersonville	5 (8)	8 (12)	
NCI Shelbyville	0 (0)	3 (4)	
BMA Care Plan – n (%)			0.386
Denosumab	30 (47)	26 (38)	
Zoledronic acid	14 (22)	22 (32)	
Pamidronate	0 (0)	1 (1)	
None	20 (31)	19 (28)	
Cancer Type – n (%)			0.024
Prostate	20 (31)	7 (10)	
Lung	17 (27)	21 (31)	
Breast	14 (22)	18 (27)	
Other	13 (20)	22 (32)	

*SD: Standard Deviation
^NCI: Norton Cancer Institute

Table 2. Adherence to Guideline Recommendations

	Pre-cohort (n = 64)	Post-cohort (n = 68)	p-value
Adherence Yes – n (%)	44 (69)	48 (71)	0.851

Table 3. Time from Diagnosis to BMA Initiation

	Pre-cohort (n = 44)	Post-cohort (n = 48)	p-value
Time (Days) – median [IQR]	21.0 [7.0, 51.5]	10.0 [2.0, 21.0]	0.019

Table 4. Rationale for BMA Non-Initiation

Reason for no BMA plan entered	Pre-cohort (n = 20)	Post-cohort (n = 20)
Radiation as definitive treatment – n (%)	9 (45)	8 (40)
Awaiting pharmacist evaluation – n (%)	0 (0)	6 (30)
Patient preference – n (%)	0 (0)	3 (15)
Dental Issues – n (%)	2 (10)	1 (5)
Hypocalcemia – n (%)	1 (5)	0 (0)
Other – n (%)	8 (40)	2 (10)

Table 5. Adherence to Guidelines by Cancer Type

Cancer Type	Pre-cohort (n = 64)			Post-cohort (n = 68)		
	Adherent	Yes	No	Yes	No	Rate (%)
Prostate	10	10	50	5	2	71
Lung	12	5	71	16	5	76
Breast	13	1	93	93	16	2
Other	9	4	69	11	11	50

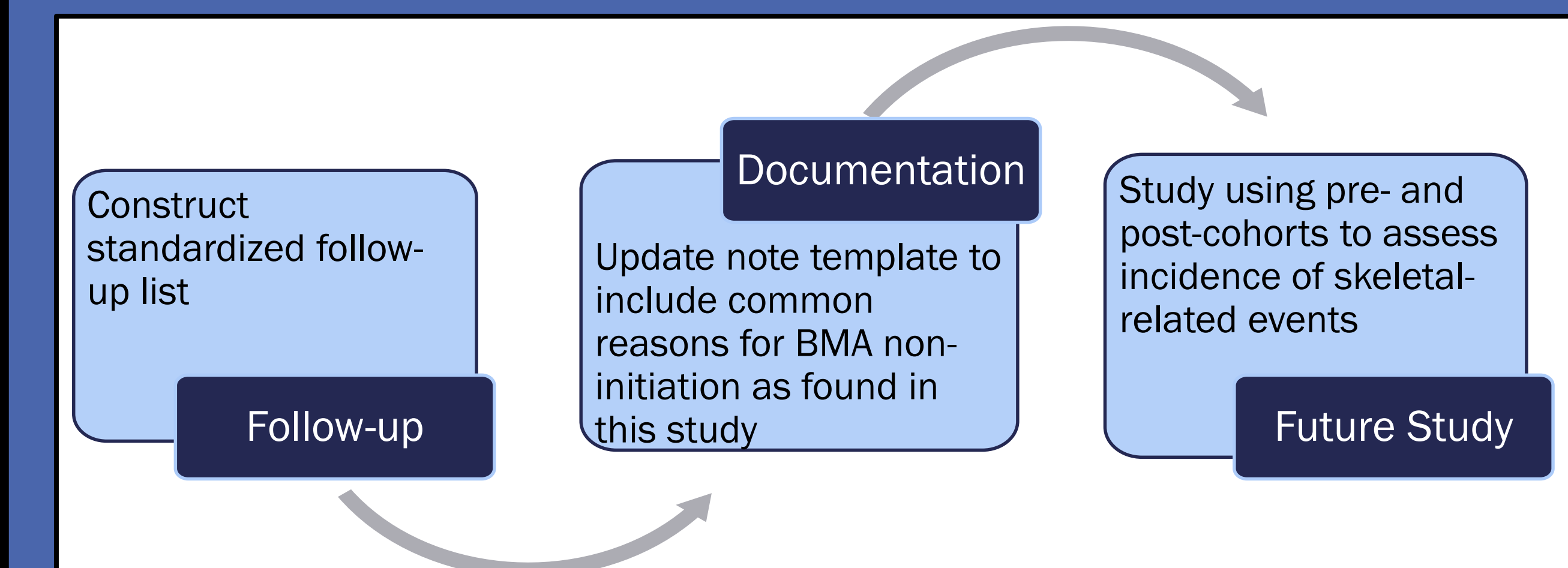
DISCUSSION

- Many patients excluded due to receiving treatment at outside facility
- No statistical difference in adherence rate between groups
- Pharmacist tool has decreased time to initiation of BMA therapy in patients with a new diagnosis of bone metastases
- Primary reason for BMA non-initiation is patient receiving radiation therapy for treatment of bone metastases

PROJECT EVALUATION

Strengths	Limitations
<ul style="list-style-type: none"> Treatment adherence to published guidelines not previously studied Generalizable patient population Utilized standard practice guidelines (ASCO and NCCN) 	<ul style="list-style-type: none"> Retrospective chart review Inconsistency with documentation Use of ICD-10 code entry date as diagnosis date Study period immediately following initiation of BPA

FUTURE DIRECTION



CONCLUSIONS

- A pharmacist-driven intervention tool can improve the time from diagnosis of bone metastases to initiation of a BMA
- A BPA can be utilized to identify patients who are potential candidates for BMA therapy
- There is potential for increasing adherence by intervening on patients who are being treated with radiation therapy

REFERENCES

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- NCCN Clinical Practice Guidelines in Oncology: Prostate Cancer (v3.2020)

DISCLOSURES

Dr. Ottman, Dr. Geraghty, and other investigators have no actual or potential conflicts of interest in relation to this presentation