



# Financial Impact From In-Office Dispensing of Oral Chemotherapy

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NCODA Fall Symposium 2017



# Disclosures

- ▶ **IRB Status:** Exempt
- ▶ **Co-investigators:** Jessie Modlin, PharmD; Julia Kerr, PharmD; Monica McLain, PharmD Candidate
- ▶ **Conflicts of Interest:** None
- ▶ **Project Sponsorship:** None

# Institution

- Mountain States Tumor Institute
  - Community Cancer Center
  - Part of St. Luke's Health System
- Locations
  - Main clinic located in Boise, Idaho
  - Five satellite clinics
- Oral Chemotherapy Service
  - Initiated in 2008
  - Recipient of ASHP and ACCC awards





# Background



- ▶ Oral Chemotherapies have been available for decades
- ▶ Exponential increase in development
- ▶ >25 million doses annually
- ▶ Since 2012, 55 % all newly approved antineoplastics are oral

Weingart SN, et al. *Cancer* 2010;116:2455–64.

Weingart SN, et al. *JNCCN* 2008;6[Suppl 3]:S1-S14

FDA Approved drugs for oncology. CenterWatch website. Available at: <https://www.centerwatch.com/drug-information/fda-approved-drugs/therapeutic-area/12/oncology>. Accessed: April 28, 2017.

# Background

## In-Office Dispensing



[http://media.recovery.org/wp-content/uploads/recovery-istock41902352-doctor\\_giving\\_medication.jpg](http://media.recovery.org/wp-content/uploads/recovery-istock41902352-doctor_giving_medication.jpg)

## Mail Order



<https://theharboredge.files.wordpress.com/2013/03/pharmacy-hand.jpeg>



## Background:

- ▶ In-office dispensing of oral chemotherapy agents
  - ▶ Benefits:
    - ▶ Clinical benefits to patients
    - ▶ Financial benefit to third party payers
      - ▶ Previous publication: \$103,567.33 over a period of 6 months based solely on medications returned to stock for credit
    - ▶ Pharmacist/Provider/Patient relationship

Mancini RS, Kramer A, Powell C. J Hematol Oncol Pharm  
2013;3(3):80-83.

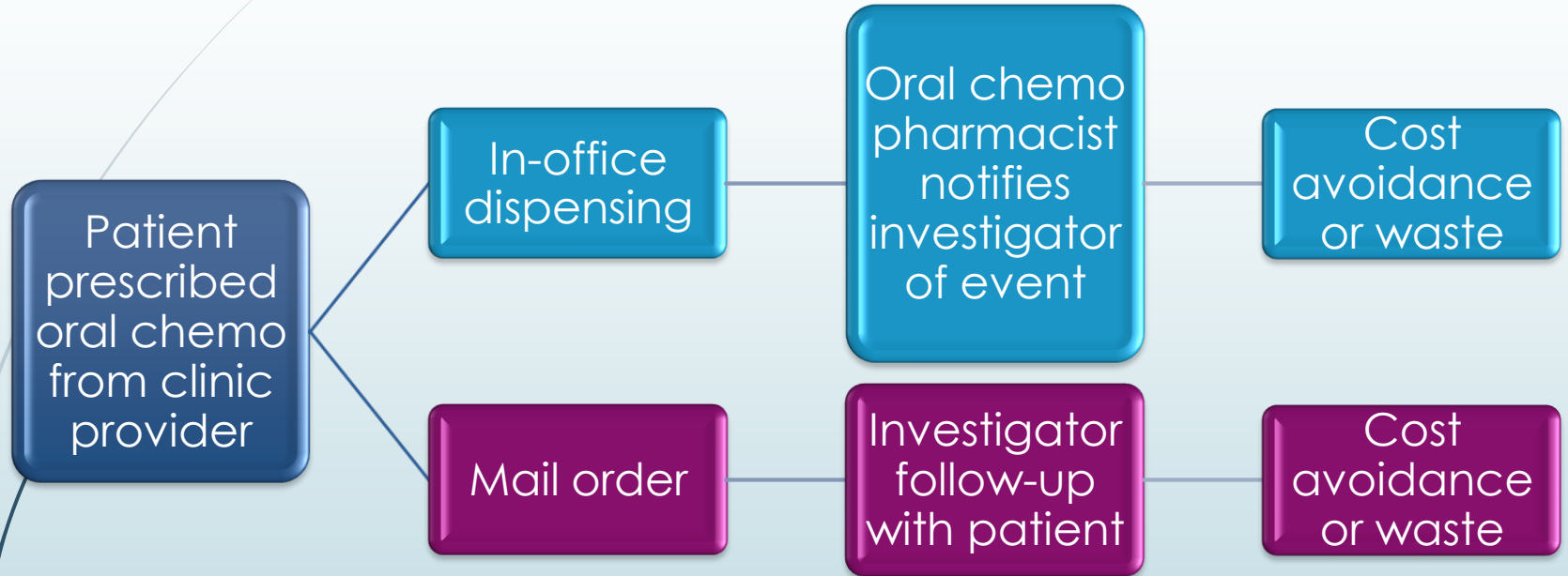
Lam MSH, Cheung N. JOPP 2016;22(6):741-748.

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# Objectives

- Assess financial impact of in-office dispensing of oral chemotherapy
  - Outcomes include calculated monetary waste and cost avoidance from in-office dispensing and prescriptions sent to mail order pharmacies

# Methods







## Methods

- ▶ Time Period: December 2016 through May 2017
- ▶ Events for financial impact evaluation:
  - ▶ Dose changes
  - ▶ Dose held
  - ▶ Therapy discontinued
  - ▶ Medication returned to stock (ie, not dispensed to patient)
  - ▶ Patient changed to mail order



# Methods: Definitions



## Cost Avoidance

- Interventions that prevent an unnecessary prescription from being filled and sent to the patient

## Waste

- Medications that have been processed and filled for the patient which are then not used by the patient

# Methods

- Monetary outcomes will be calculated using the National Community Oncology Dispensing Association, Inc. (NCODA) MedExpense Tool which uses average wholesale price (AWP)



**Add MedExpense**

<p><b>Date Medication Received/intervention *</b></p> <input type="text"/>	<p><b>Dispensing Pharmacy *</b></p> <input type="text" value="Select..."/> +	<p><b>Medication *</b></p> <input type="text" value="Select"/>
<p><b>Date Medication Dispensed</b></p> <input type="text"/>	<p><b>PBM</b></p> <input type="text" value="Select..."/> +	<p><b>MedExpense Type *</b></p> <p><input type="radio"/> Waste</p> <p><input type="radio"/> Cost Avoidance</p>
<p><b>Name of Practice *</b></p> <input type="text" value="Select"/>	<p><b>BIN</b></p> <input type="text" value="Select..."/> +	<p><b>Reasons</b></p> <input type="text" value="Select..."/>
<p><b>Type *</b></p> <p><input type="radio"/> Medicare</p> <p><input type="radio"/> Medicaid</p> <p><input type="radio"/> Commerical</p> <p><input type="radio"/> Patient Assistant Program (PAP)</p>	<p><b>PBM Group</b></p> <input type="text"/>	
	<p><b>PCN</b></p> <input type="text"/>	

[Calculate MedExpense](#)

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# Results: Dec 2016-May 2017

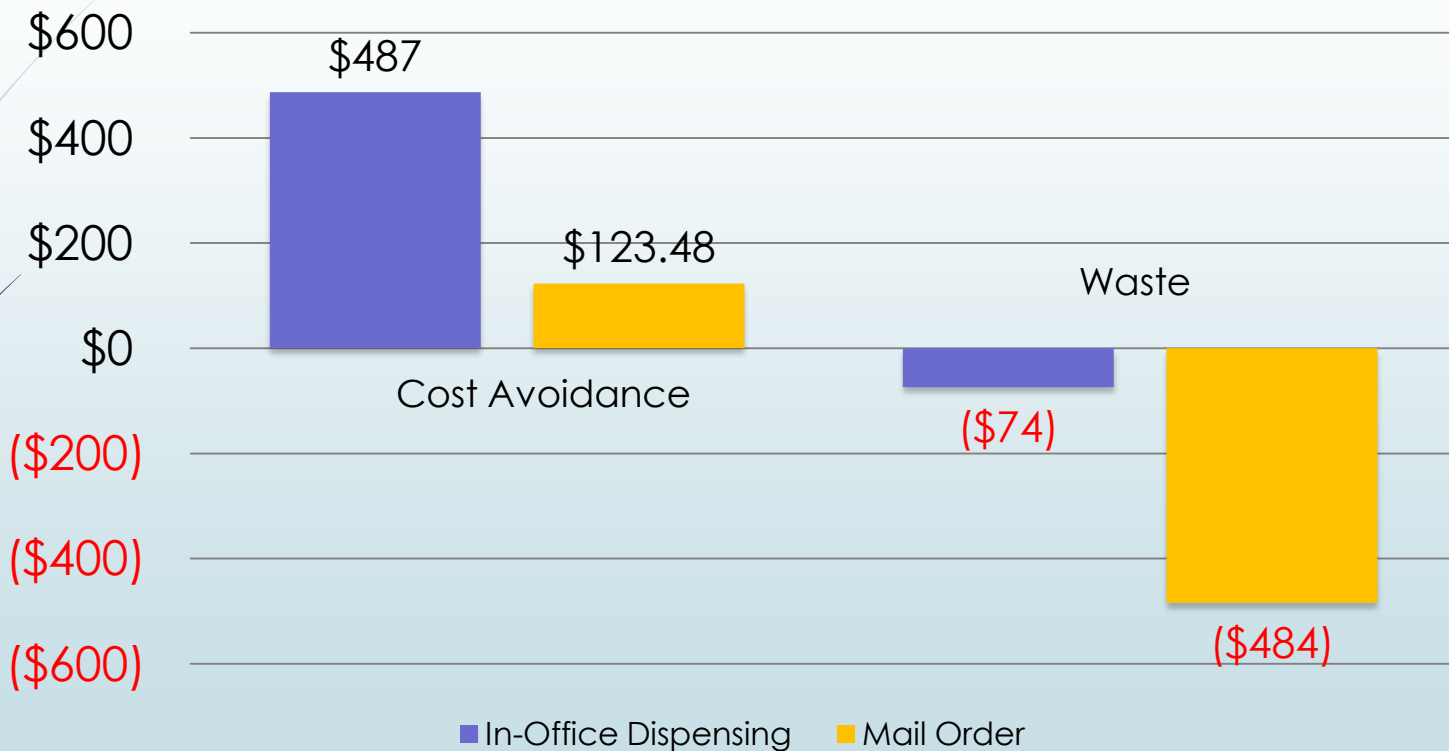
## Mail order:

- ▶ 66 patients received 166 total prescriptions during this time period
- ▶ Total Cost Avoidance= \$20,497 (n=4)
- ▶ Total Waste= \$80,394 (n=15)
- ▶ Average Net Waste= \$9982 per month

## In-office Dispensing:

- ▶ 598 patients received 2096 total prescriptions during this time period
- ▶ Total Cost Avoidance= \$1,020,193 (n = 154)
- ▶ Total Waste= \$154,985 (n = 36)
- ▶ Average Net Cost Avoidance= \$144,201 per month

## Average Financial Impact (Per Rx)





# Results: In-Office Dispensing

## (Top 10 medications)

Medication	# Events	Cost Savings
Lenalidomide	23	\$217,255
Palbociclib	15	\$134,500
Capecitabine	49	\$118,107
Abiraterone	10	\$72,919
Nilotinib	6	\$48,168
Ibrutinib	8	\$48,066
Temozolomide	7	\$46,550
Everolimus	2	\$46,341
Pazopanib	4	\$40,720
Enzalutamide	4	\$38,048

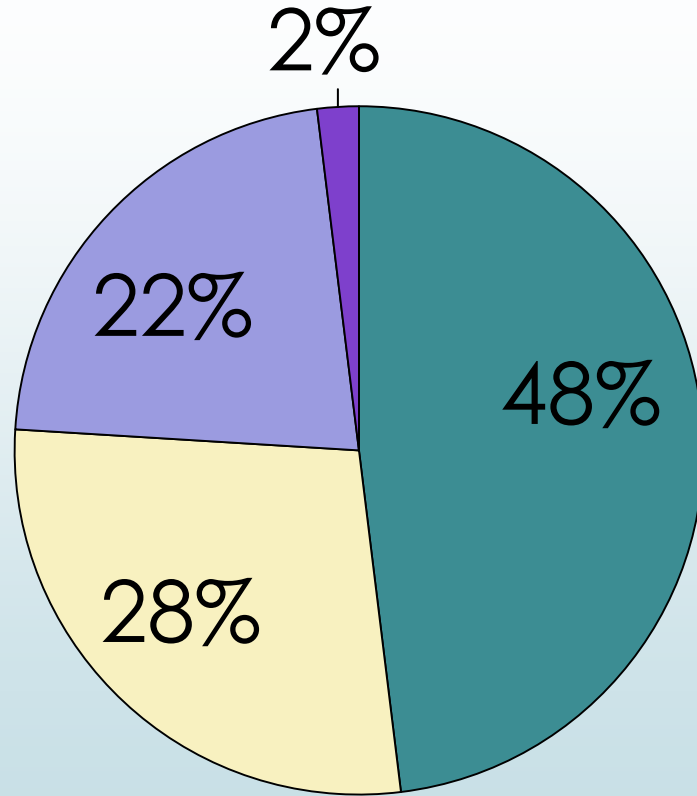


## Results: Mail Order

Medication	# Events	Cost Savings
Erlotinib	1	\$7356
Lenalidomide	1	\$6737
Temozolomide	1	\$2872

- All 3 cost avoidance events initiated by physician or patient

# Cost Avoidance Reasons



- Unscheduled discontinuation
- Treatment Held
- Dose Changed
- Other





# Discussion

- ▶ Mail Order:

- ▶ All cost avoidance events initiated by provider or patient

- ▶ In-Office Dispensing:

- ▶ Unique cost avoidance relating to in-office dispensing:
  - ▶ Unscheduled discontinuation/return to stock
  - ▶ As providers often see patients prior to starting their next cycle, in-office dispensing allows patients to only receive their medication after review of their therapy at this appointment
- ▶ Pharmacist role in cost avoidance



## Limitations

- ▶ Definition of waste may vary from other sources
  - ▶ May limit generalizability
- ▶ Small number of prescriptions filled through mail order during study time period
  - ▶ May limit the generalizability
- ▶ All mail order companies were combined for the purposes of this project
  - ▶ Different MO companies may have different approaches to same process, altering cost avoidance/waste probability
- ▶ Relies on pharmacist reporting of events for in-office dispensing data
  - ▶ May cause underestimation of # events



## Conclusion

- ▶ In-office dispensing of oral chemotherapy has a significant financial impact beyond previously described
- ▶ The broader scope of this project demonstrates more accurately the impact pharmacists have in this setting on the financial burden related to oral chemotherapy

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# Questions

- ▶ Contact information:
  - ▶ Anna Howard, PharmD
  - ▶ [ahoward@billingsclinic.org](mailto:ahoward@billingsclinic.org)



## References

- Weingart SN, Toro J, Spencer J, et al. Medication Errors Involving Oral Chemotherapy. *Cancer* 2010;116:2455–64.
- Weingart SN, Brown E, Bach PB, et al. NCCN Task Force Report: Oral Chemotherapy. *JNCCN* 2008;6[Suppl 3]:S1-S14.
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- Lam MSH, Cheung N. Impact of oncology pharmacist-managed oral anticancer therapy in patients with chronic myelogenous leukemia. *JOPP* 2016;22(6):741-748.