

Implications of dose-rounding of intravenous chemotherapy at a community-based hospital

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Disclosure Statement



- The following individuals have nothing to disclose regarding possible financial or personal relationships with commercial entities (or their competitors) that may be referenced in this presentation.
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 - Omparkash Gopalani, BS, RPh
 - Judy Tseng, Pharm.D., BCPS

Clinical Setting

- South Miami Hospital
- Approximate annual oncology census
 - 7500 inpatients
 - 400 outpatients



Presentation Objective

- Describe the evidence for dose-rounding single-dose IV chemotherapy
- Emphasize the benefits of dose-rounding single-dose IV chemotherapy
- Describe the feasibility of dose-rounding IV chemotherapy at a community-based hospital

Background

- Chemotherapy medications
 - Leading class associated with medication expenditure
 - Trend expected to continue
- Benefits of dose-rounding protocols
 - Reduction in medication expenditure and waste disposal
- Increasing number of studies showing benefits
 - Patel et al ⁵
 - Yearly estimated savings of ~ \$ 37,000 by rounding the dose of rituximab to the nearest vial size using a 5% dose deviation
 - Brenda et al ¹
 - Estimated cost-saving of \$24,434 over a 3-month period

Reasons for Not Rounding

- Concerns related to reduced clinical outcomes
- Lack of validated protocol
- Unaware of medication price and shortage
- Concerns related to time

Study Outcomes

Purpose

- Evaluate the feasibility and cost-saving potential of dose-rounding by a pharmacist and recommend potential medications for an automatic dose-rounding protocol

Outcomes

- Quantify and evaluate the total number of pharmacist interventions completed for dose-rounding of single-dose IV chemotherapy medications
- Calculate the cost savings associated with dose-rounding of single-dose IV chemotherapy medications
- Identify the 5 most commonly prescribed medications yielding the most cost-savings

Methods





- Prospective, single-center, IRB-approved interventional study
- Conducted at South Miami Hospital from December 14th 2013 to March 14th 2014
- Inclusion Criteria
 - All oncology patients 18 years of age and older receiving single-dose vial IV chemotherapy agents during the study period
- Exclusion Criteria
 - Patients receiving chemotherapy agents formulated in multi-dose vials
 - Patients receiving chemotherapy agents for an indication other than cancer


Methods


- Data collection
 - Notification of order by IV room pharmacist
 - Notification of order by outpatient oncology staff
- Intervention
 - Dose-rounding based on 5% limit criteria


Data Collection

- 
- mg per vial
 - Dose prescribed

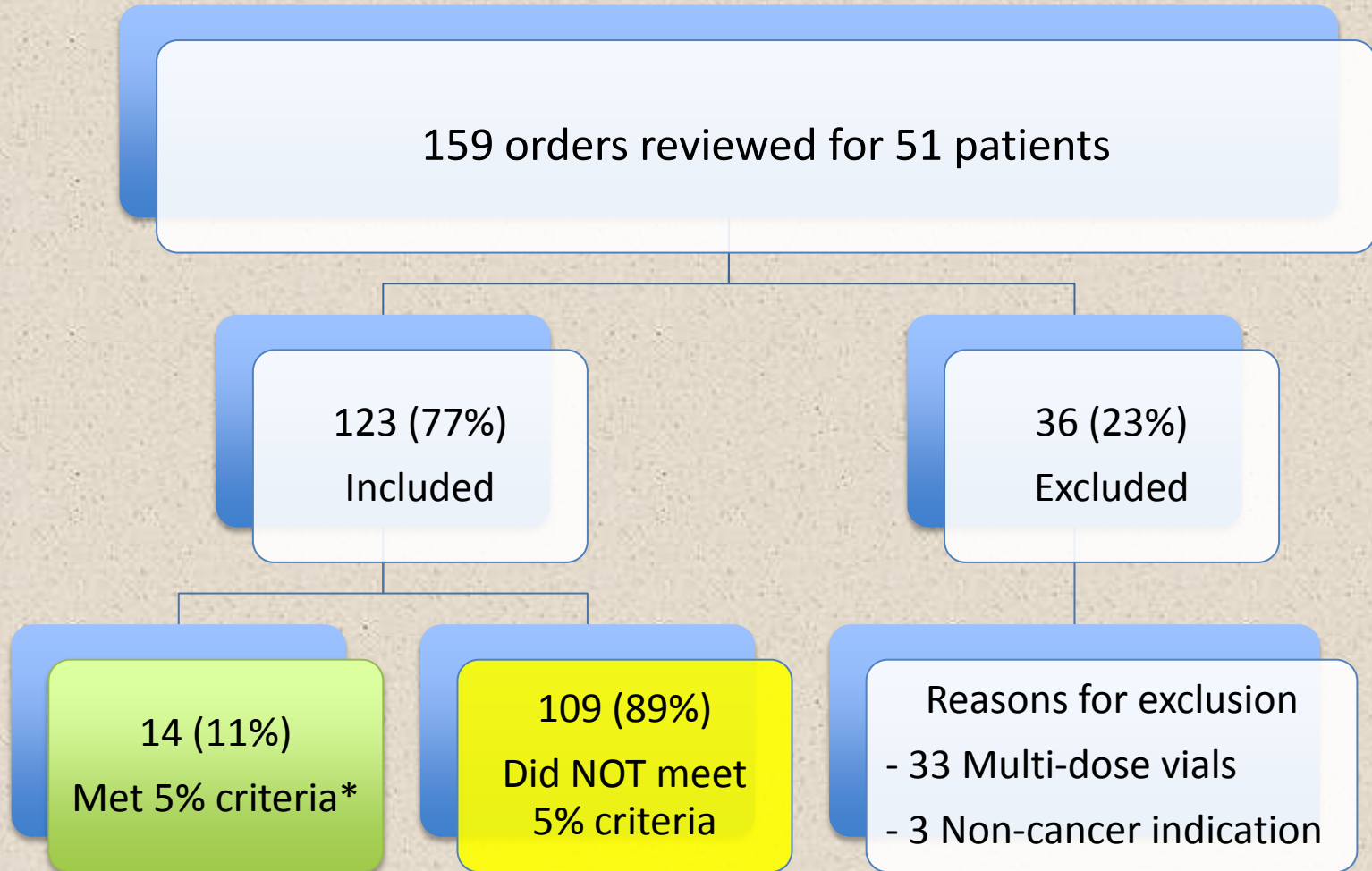
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- Dose meeting 5% dose-rounding limit criteria?

- 
- Number of vials before rounding
 - Number of vials after rounding

- 
- Number of vials saved per dose
 - Cost of vial

- 
- Total US dollars saved per dose

Results



*All interventions were made by phone and were accepted by the prescriber

Results

Medication	Doses Rounded	Amount of patients rounded	Amount Saved (US Dollars)
Avastin (Bevacizumab)	6	3*	3,739.02
Alimta (Pemetrexed)	1	1	2,831.76
Rituxan (Rituximab)	2	1	1,317.30
Doxil (Liposomal Doxorubicin)	1	1	1,131.00
Cytoxan (Cyclophosphamide)	2	1	516.98
Taxotere (Docetaxel)	1	1	94.21
Adriamycin (Conventional Doxorubicin)	1	1	4.24
			9,634.51

* Patient 1 received 3 doses, patient 2 received 2 doses, and patient 3 received 1 dose

Results

Medication	Doses prescribed	Vial price (US dollars)	Potential Savings (US dollars)
Doxorubicin (Liposomal)	17	1,132	19,244
Bevacizumab	11	623	6,853
Rituximab	7	659	4,613
Cyclophosphamide	16	258	4,128
Pemetrexed	1	2,832	2,832
Docetaxel	19	94	1,786
Doxorubicin (Conventional)	11	4	44

Conclusions

- Dose-rounding interventions by a pharmacist is feasible
- Significant cost-savings are possible due to the dose-rounding of IV chemotherapeutic agents
- The 5 most commonly prescribed medications yielding the most cost-savings were doxorubicin (liposomal), bevacizumab, rituximab, cyclophosphamide, and pemetrexed

Limitations

- Single-center study
- Short study period
- Small sample size

Future directions

- Implement an automatic dose-rounding protocol

Self Assessment

Which of the following are established benefits of a dose-rounding protocol of chemotherapy medications?



- ★ a- Cost-savings
- ★ b- Reduction of waste disposal
- c- Improved clinical outcomes
- d- Two of the above
- e- All of the above

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 - Judy Tseng, Pharm.D., BCPS
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- SMH Pharmacy Staff

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