

ASCO's Quality Training Program

Improving the use of Pegfilgrastim in Lung Cancer patients at the Taussig Cancer Institute of the Cleveland Clinic.

Lindsey Goodman, MD
Machelle Moeller, CNP

March 6, 2014

Institutional Overview



Problem Statement

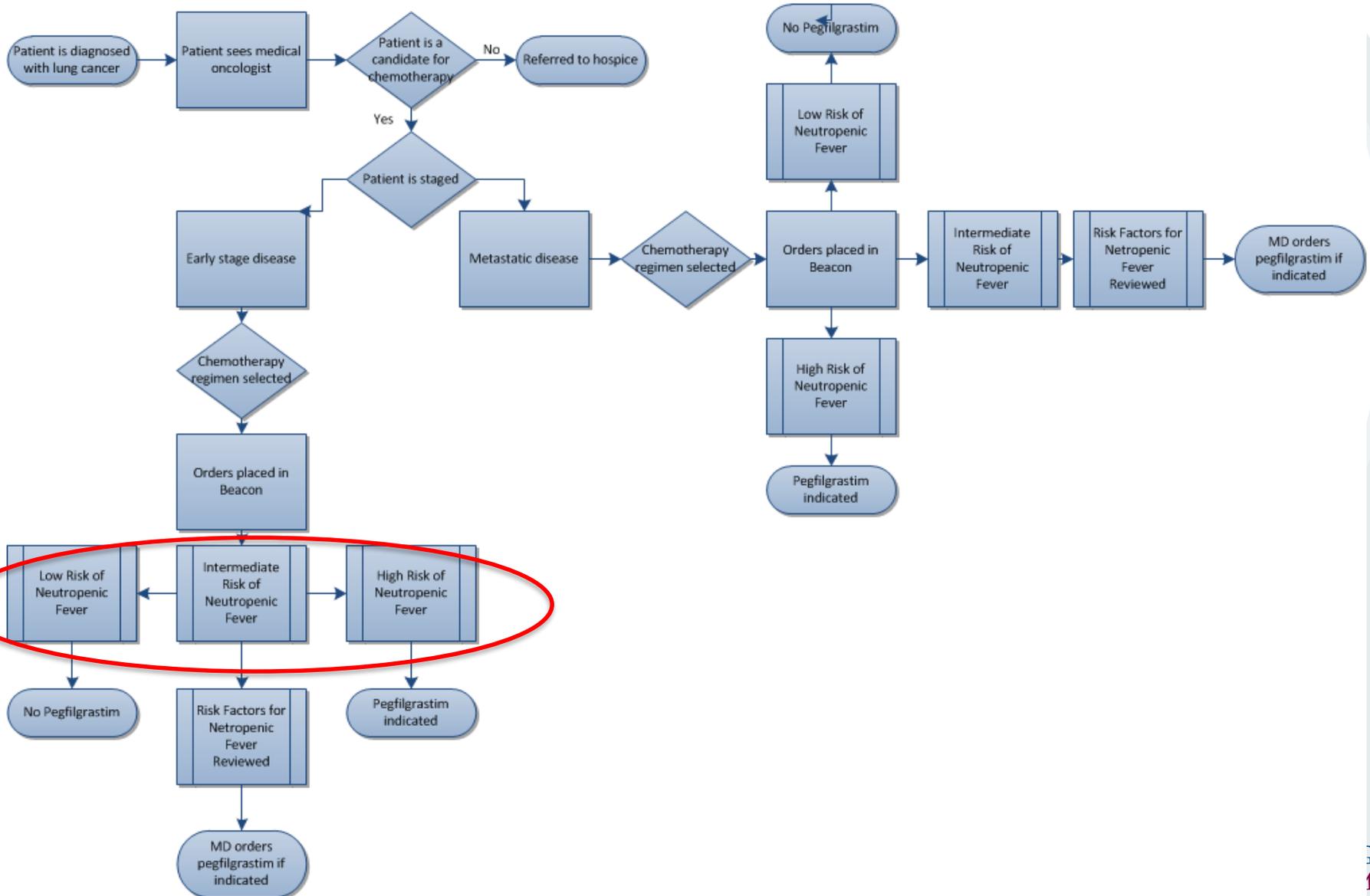
20% of lung cancer patients treated at the Taussig Cancer Institute of the Cleveland Clinic Foundation, are administered prophylactic pegfilgrastim.

- The inappropriate use of prophylactic growth factors increases morbidity and unnecessary cost to health care organizations.
- In the current healthcare market, it is critical to eliminate waste and unnecessary treatments for our patients.
- Each dose of pegfilgrastim causes increased cost to the health care system and our patients:
 - **\$15,090 charged for each dose patient.**
 - \$3,253 reimbursed per dose for CMS patients.
- The national guidelines for prophylactic growth factors are inconsistent.

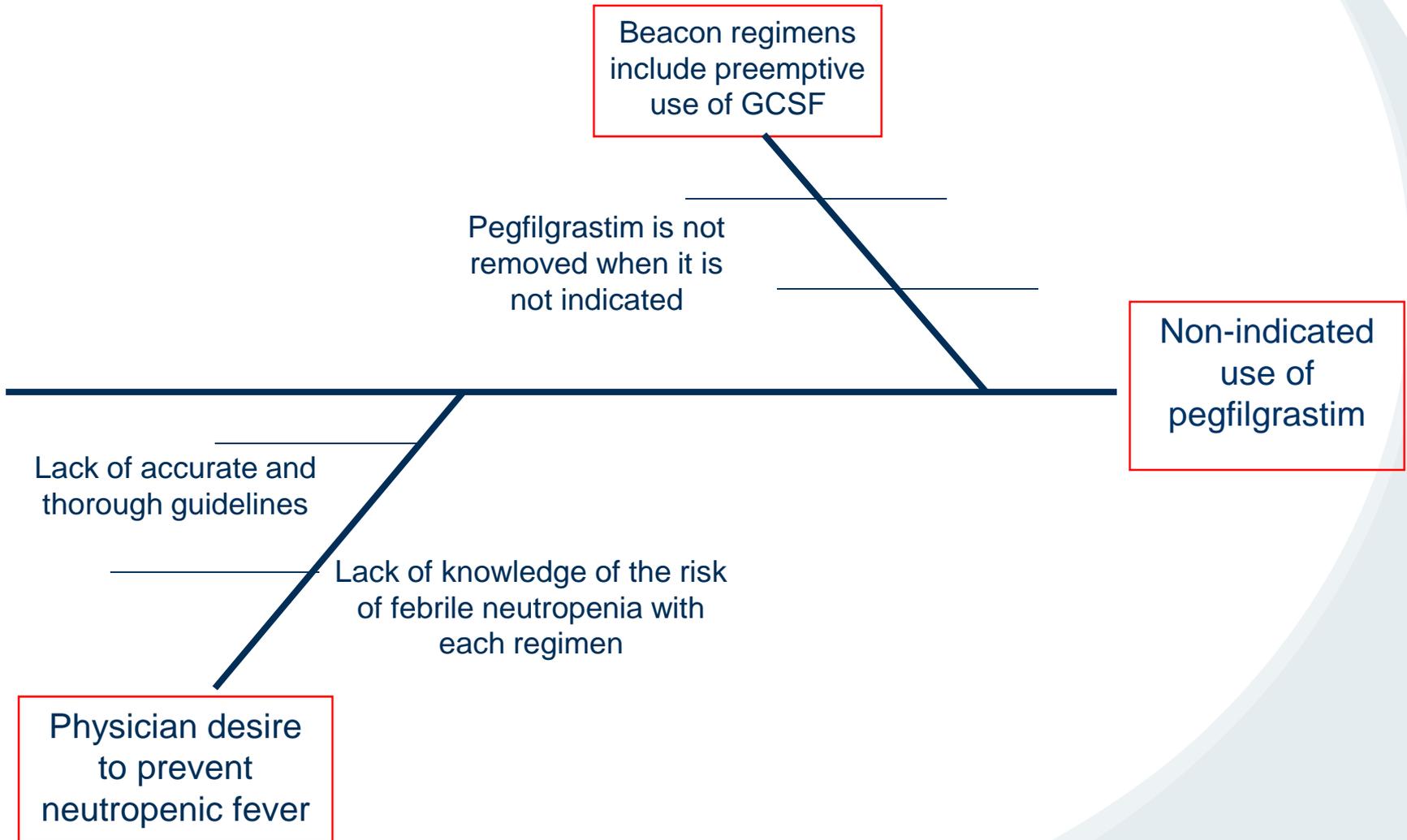
Team Members

- Marc Earl, Pharmacy
- Rebecca Fitzgerald, Finance
- Michael Gordian, Finance
- Lung Cancer Physicians and Mid-levels
- Carole Dalby, QTP Improvement Coach
- Machel Moeller, Breast Cancer NP
- Lindsey Goodman, MD, Team Leader
- James Stevenson, MD, Project Mentor

Process Map



Cause & Effect Diagram



Aim Statement

- To eliminate the use of prophylactic pegfilgrastim in lung cancer patients being treated with ‘low risk for neutropenic fever’ chemotherapy regimens at the Taussig Cancer Institute of the Cleveland Clinic Foundation by February 28, 2014.
- For a potential decrease in charges of \$1.6 million per year.

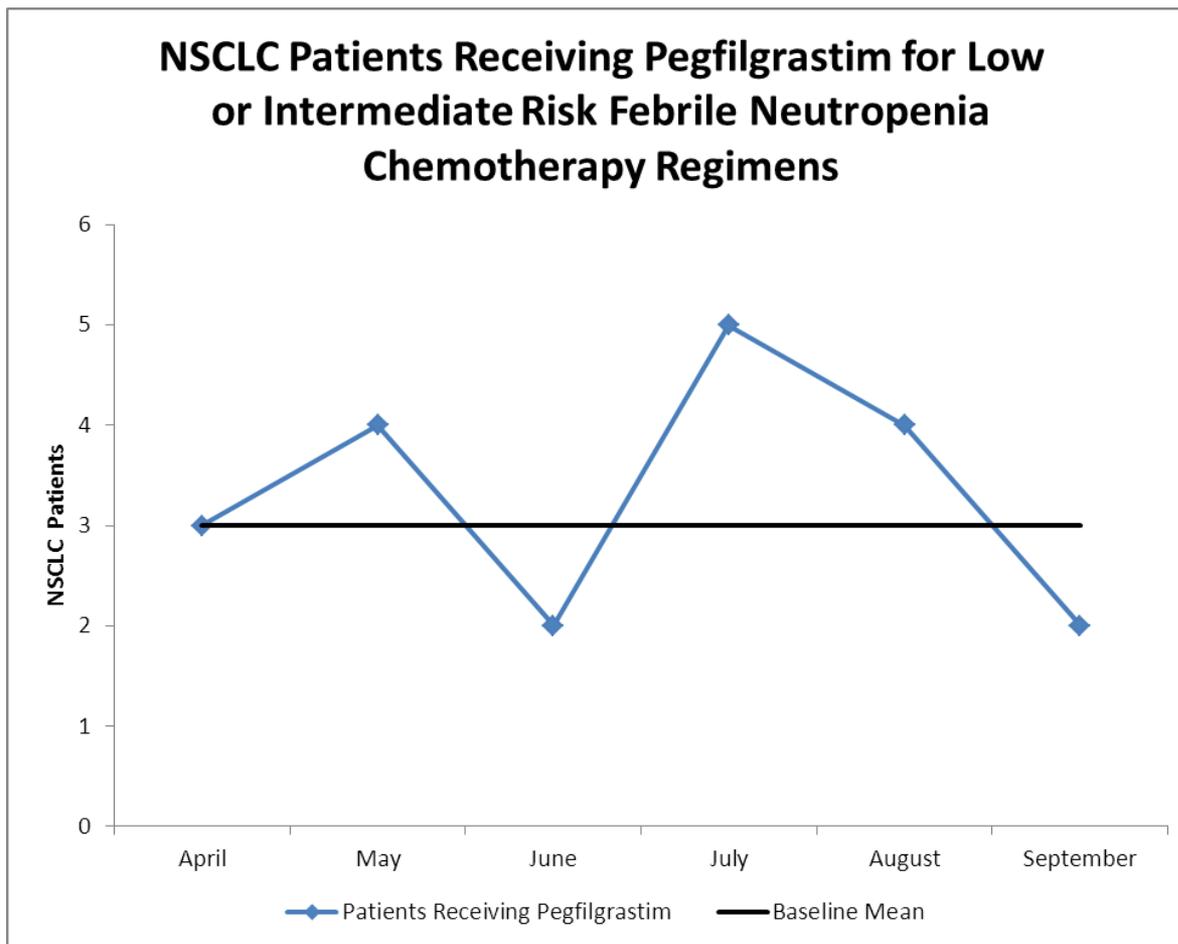
Measures

- **Measure:** Use of prophylactic pegfilgrastim
- **Patient population:**
 - Lung cancer patients initiating a new chemotherapy regimen
 - Exclusions: Small cell lung cancer patients, Patients receiving pegfilgrastim with chemotherapy regimens at high risk of neutropenic fever (appropriate use).
- **Calculation methodology:**
 - Number of patients receiving pegfilgrastim.
 - Total number of patients treated.
 - Determine the charges for each dose of pegfilgrastim.
- **Data source:** EPIC, electronic medical record
- **Data collection frequency:** Every 2 months
- **Limitations:** None.

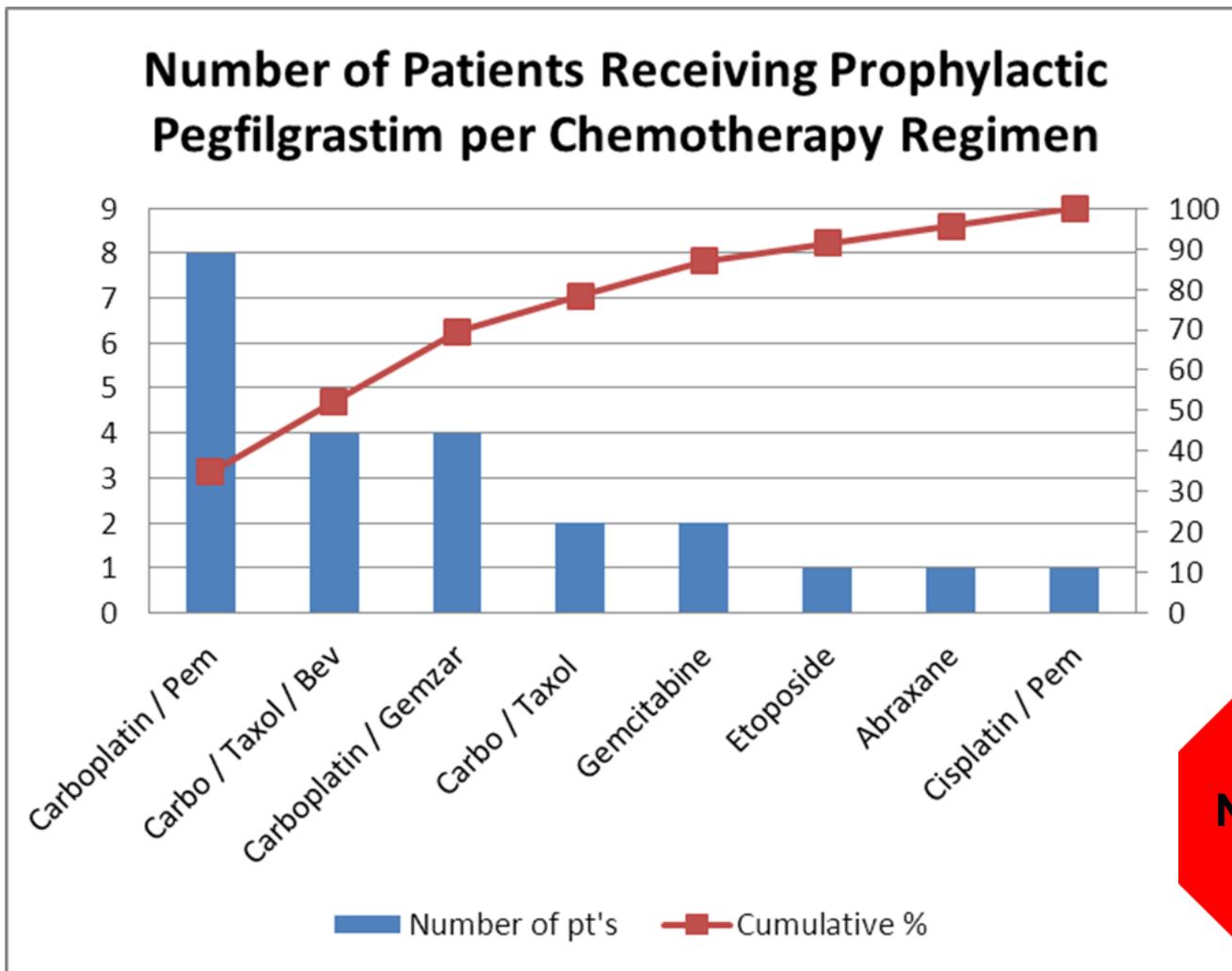
Baseline Data

Prophylactic use of pegfilgrastim
April to November 2013

Baseline Data

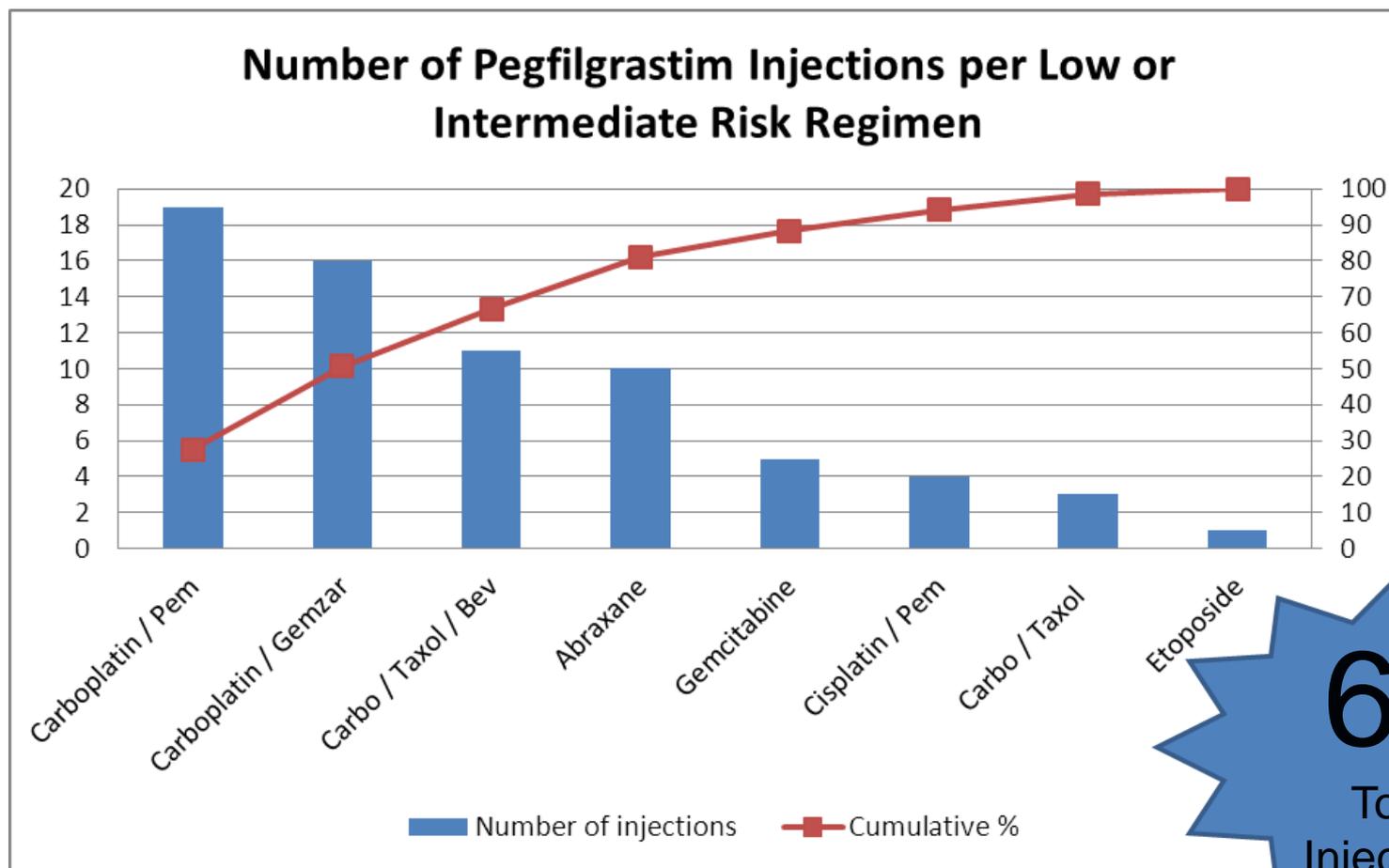


Baseline Data



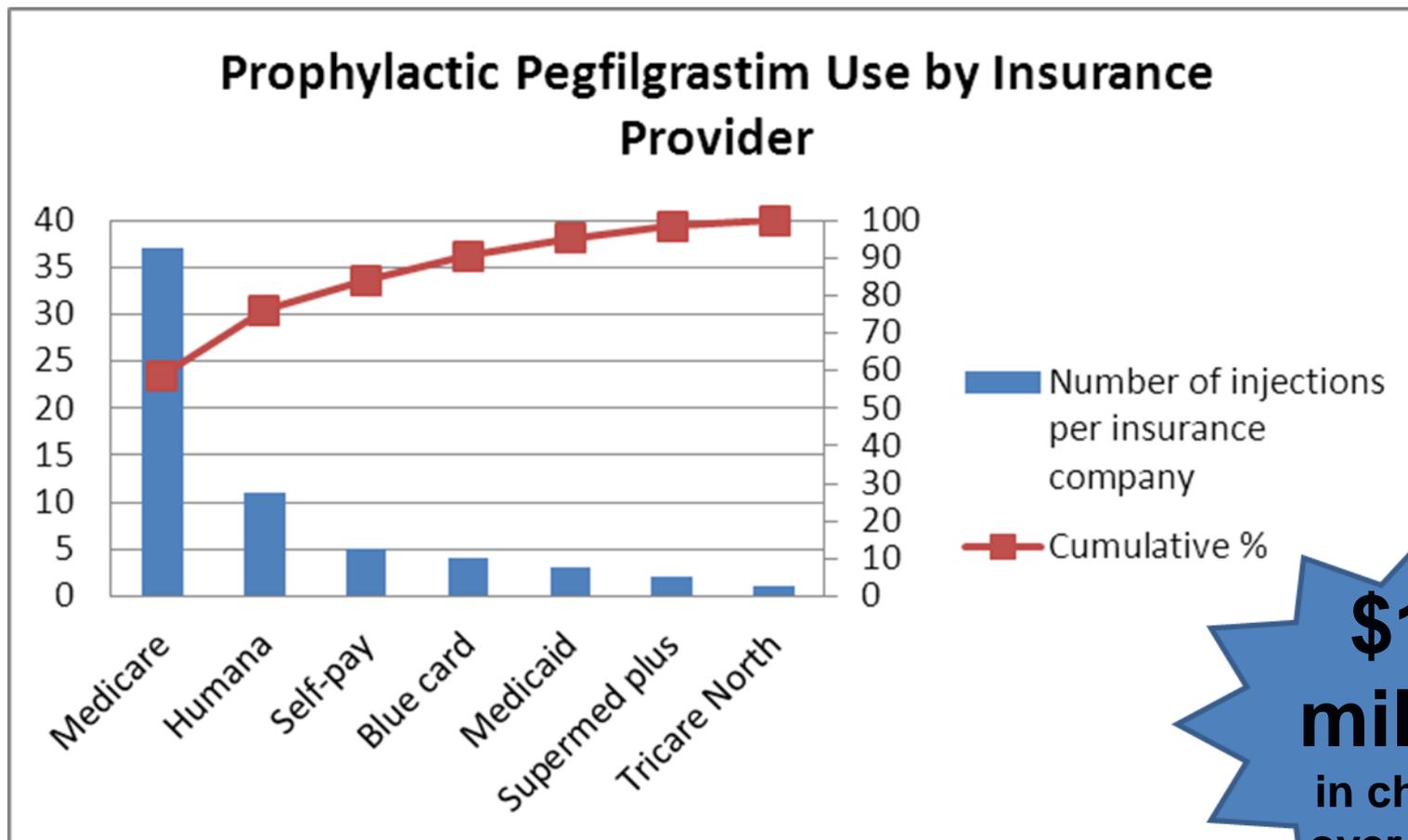
**Low Risk
Neutropenic
Regimens**

Baseline Data



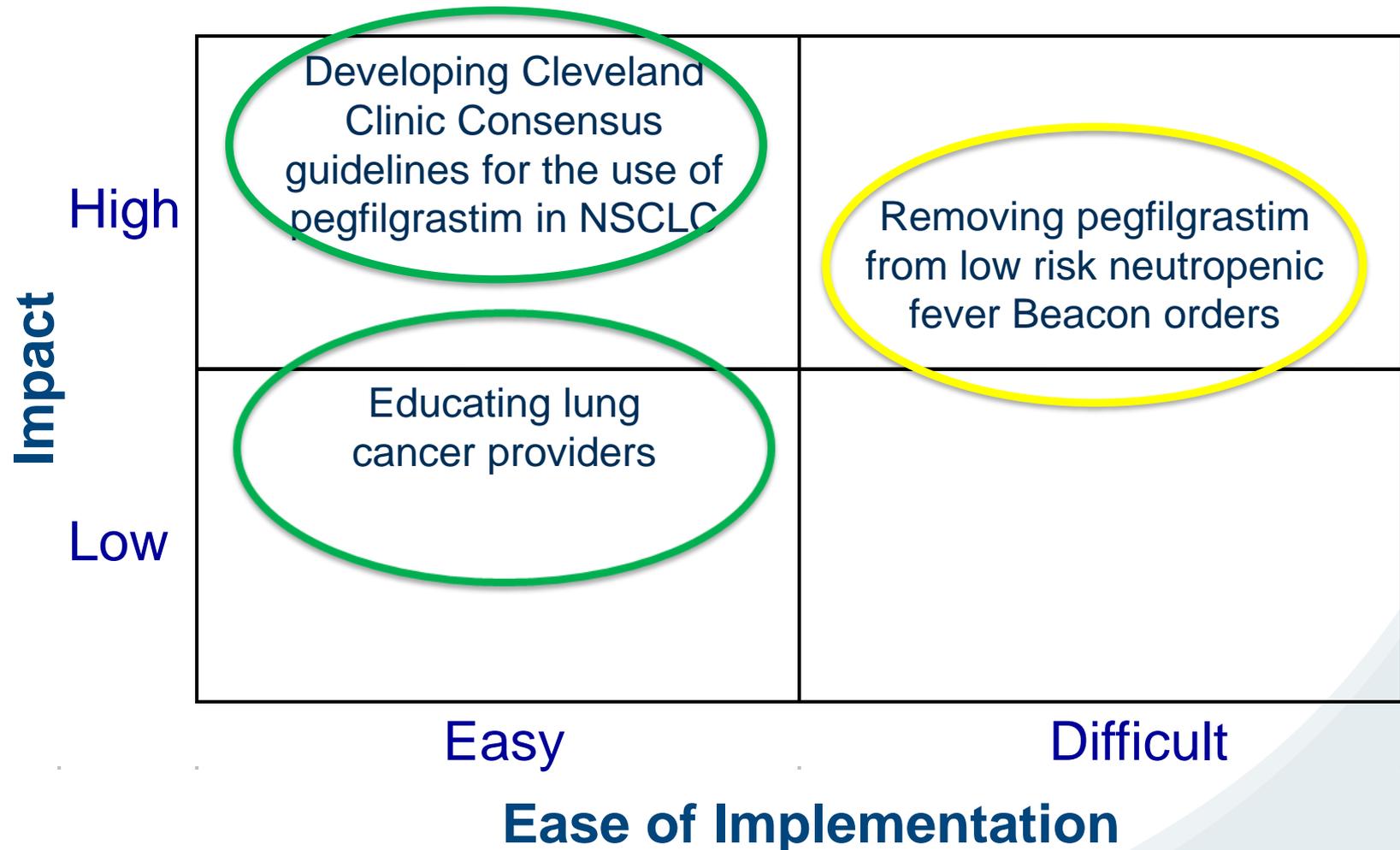
69
Total
Injections

Baseline Data



\$1.6 million
in charges
over 1 year

Prioritized List of Changes (Priority/Pay-Off Matrix)



PDSA Plan (Tests of Change)

Date of PDSA cycle	Description of intervention	Results	Action steps
January 31, 2014	Presenting Basline Data – Educating lung cancer providers	Good response Receptive	Requested copies of Consensus guidelines
February 11, 2014	Posted Consensus guidelines in work stations	Pending	
Pending	Removing standing pegfilgrastim from low risk of febrile neutropenia chemotherapy regimens in Beacon orders		

Materials Developed (optional)

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Prophylactic use of GCSF
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Basic Demography Form

Study ID _____

MRN _____

Diagnosis Breast Cancer
 Lung Cancer

Stage I
 II
 III
 IV
 unknown

Chemotherapy Regimen _____

Risk of Neutropenic Fever >20%
 10-20%
 < 10%

Age (years) 65 and older
 less than 65 years old

Gender Female
 Male

Performance Status 0
 1
 2
 3
 4
 unknown

Renal Function GFR 60 and greater
 GFR < 60

Abnormal Bilirubin Yes
 No
 Unknown

Pre-existing neutropenia Yes
 No
 Unknown

Pre-existing wounds Yes
 No
 Unknown

Pre-existing infection Yes
 No
 Unknown

Prior history of treatment with chemotherapy or radiation Yes
 No

Follows guidelines Yes
 No

Number of doses of GCSF 0
 1
 2
 3
 4
 5+

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Cost of total GCSF use during regimen _____

General Comments

Provider Abraham
 Andresen
 Budd
 Dushkin
 La Grand
 Ma
 Montero
 Moore
 Rennell
 Shapiro
 Stevenson
 Velchetti

Comments _____

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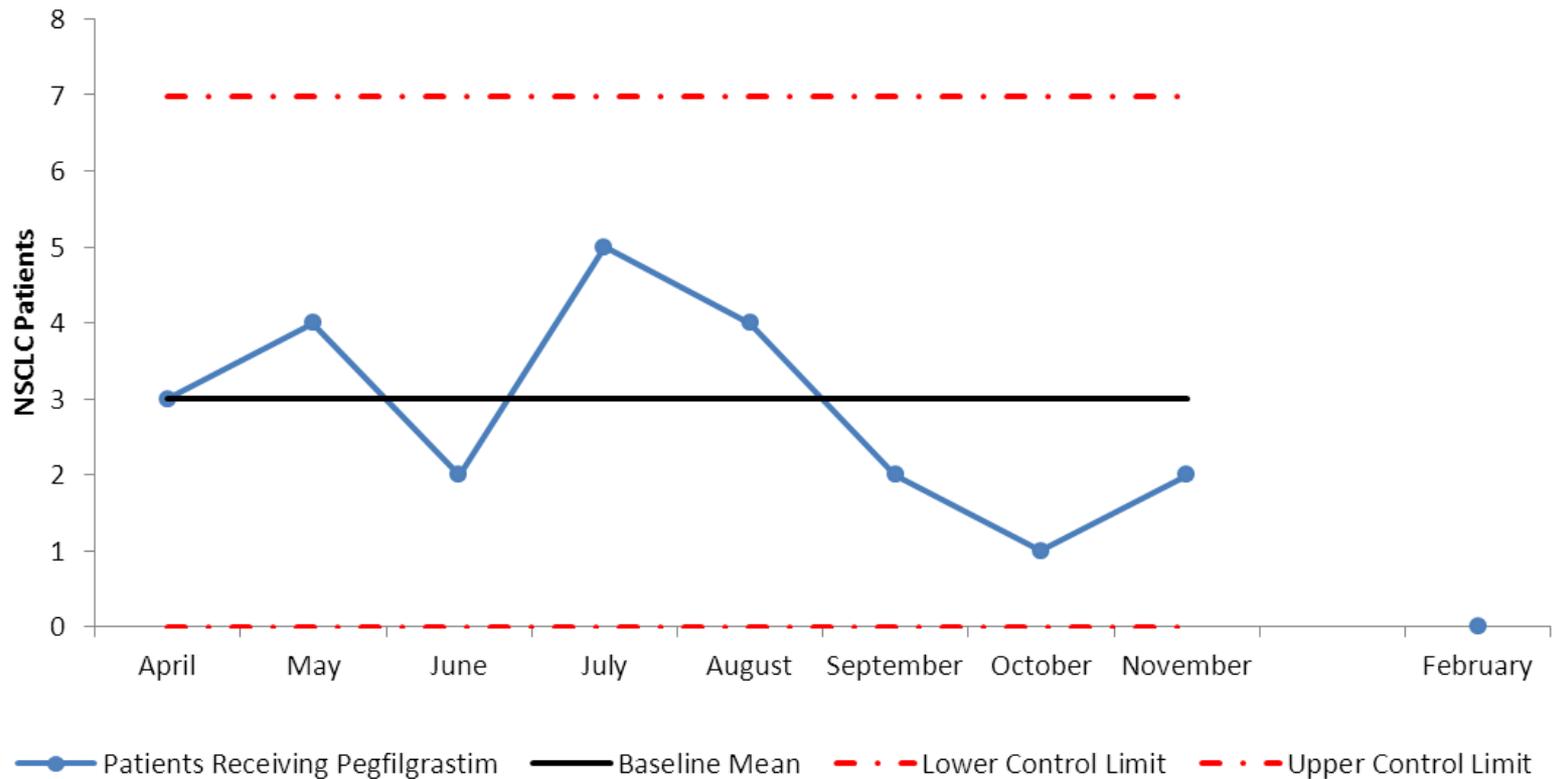
Cleveland Clinic Consensus Guidelines for Use of GCSF in NSCLC patients

- High Risk of Neutropenic Fever
 - Carboplatin/Docetaxel
 - Cisplatin/Docetaxel
 - Cisplatin Etoposide
- Intermediate Risk of Neutropenic Fever
 - Docetaxel (75mg/m² administered every 3 weeks)
 - Etoposide
- Low Risk of Neutropenic Fever
 - Docetaxel (35mg/m² administered weekly)
 - Gemcitabine
 - Gemcitabine/Carboplatin
 - Nab-paclitaxel
 - Paclitaxel
 - Paclitaxel/Carboplatin +/- Bevacizumab
 - Pemetrexed +/- Bevacizumab
 - Pemetrexed/Carboplatin +/- Bevacizumab
 - Pemetrexed/Cisplatin +/- Bevacizumab
 - Vinorelbine

GCSF is indicated for high risk regimens. GCSF is not indicated for low risk regimens. For intermediate regimens, additional criteria (age, prior treatment, renal/hepatic function, pre-existing neutropenia, and wounds) should be considered.

Change Data

NSCLC Patients Receiving Pegfilgrastim for Low or Intermediate Risk Febrile Neutropenia Chemotherapy Regimens (c-chart, 3-sigma)



Conclusions

- The education of the lung cancer providers and the development of Consensus Guidelines for the use of pegfilgrastim in NSCLC patients has decreased the use of prophylactic pegfilgrastim.
- In just 2 weeks, this has generated a \$60,000 decrease in charges to the health care system.

Next Steps/Plan for Sustainability

- Change Beacon orders.
- Measure pegfilgrastim use over the next 3-6 months.
 - If we have decreased pegfilgrastim use:
 - Consider expanding to Cleveland Clinic regional oncology practices
 - If we have not decreased pegfilgrastim use:
 - Back to the drawing board
 - More PDSA cycles

Improving the use of Pegfilgrastim in Lung Cancer patients at the Taussig Cancer Institute of the Cleveland Clinic

AIM: To eliminate the use of prophylactic pegfilgrastim in lung cancer patients being treated with 'low risk for neutropenic fever' chemotherapy regimens at the Taussig Cancer Institute of the Cleveland Clinic Foundation by February 2014. For a total decrease in cost charges of \$1.6 million per year.

INTERVENTION:

- Educated lung cancer providers/presented baseline data
- Developed Cleveland Clinic Consensus guidelines for the use of pegfilgrastim in non-small cell lung cancer patients (NSCLC)
- Removed pegfilgrastim from low risk neutropenic fever chemotherapy regimens in Beacon (online ordering system) standing orders

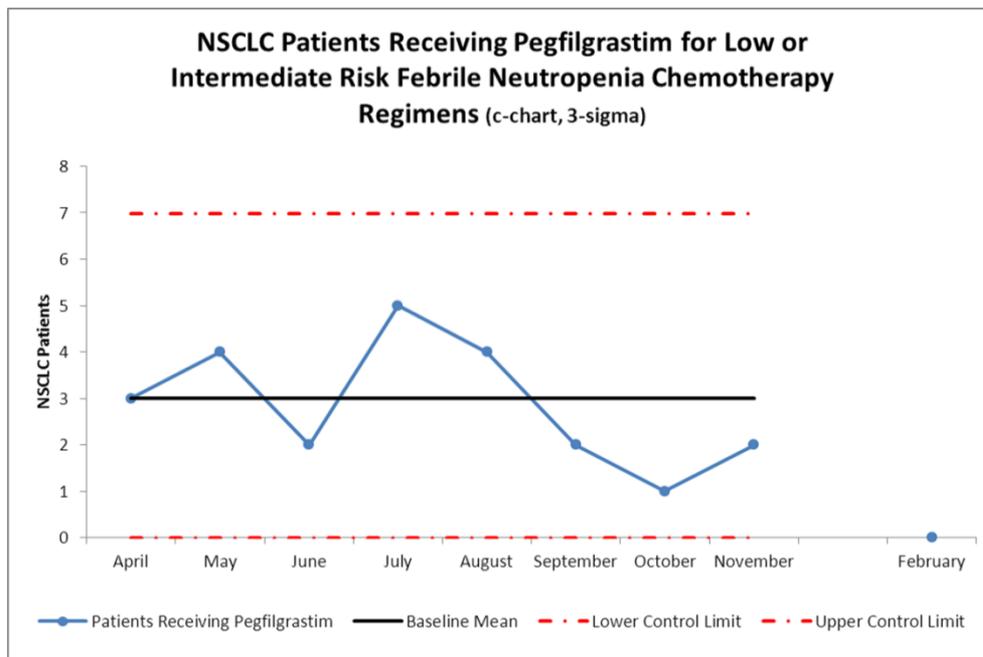
TEAM:

Marc Earl, Pharmacy
Rebecca Fitzgerald, Finance
Michael Gordian, Finance
Tara Rich, Lung Cancer NP
Carole Dalby, QTP Coach

PROJECT SPONSORS:

James Stevenson, MD, Quality Officer

RESULTS:



CONCLUSIONS: The education of the lung cancer providers and the development of Consensus Guidelines for the use of pegfilgrastim in NSCLC patients has decreased the use of prophylactic pegfilgrastim. In just 2 weeks, this has generated a \$60,000 decrease in cost to the health care system.

NEXT STEPS:

- Change Beacon orders.
- Follow pegfilgrastim use over the next 3-6 months. If we have decreased pegfilgrastim use consider expanding to Cleveland Clinic regional oncology practices.