# L09: Efficient Presentation using Data to Different Audiences.

ANLY 5900: Storytelling for Data Science

Irina Vayndiner

March 25, 2025



# Logistics and Outline for today's class

- Today:
  - Spotify Case studies: in groups
  - Break included in prep time
- Reminders:
  - Storytelling Writing test in-class Tue 4/1
  - HW2 is due Wed 4/2
- New Assignments
  - HW3 will explain today
    - Presentation in class on Tue 4/15
    - If you have a preference, email groups to Sophia Tue by 4/1 noon, otherwise she will create groups
  - Assignment (10 points): upload to Canvas your "original" poster or "original" slide deck
    - Due on Tue 4/8

# **Storytelling Writing Exam in Class**

#### HOW TO PREPARE AND WHAT TO EXPECT

- Review all lectures and presentations as related to Storytelling.
- All major elements of Storytelling need to be present in your story.
- After you write your story, you will need to provide metadata of your story including types of story, type of ending, what do you want your audience feel/think/do, etc.
  - Basically, all of those that we discussed so far during the semester.
- Read before the exam in the Reading Folder on Canvas:
  - Hints for Storytelling
  - CliftonStrenthgs

# **Writing Exam: Logistics**

- 1. The theme will be provided at the start of the test on 4/1
- 2. Access to Canvas is ok only but no outside materials allowed

Starts at 12:30 (be on time!)

Done NLT 3pm

# **Case Study Presentations**

- Spotify Case studies: <a href="https://towardsdatascience.com/spotify-case-study-is-there-a-secret-to-producing-hit-songs-aab8c2dc64c1/">https://towardsdatascience.com/spotify-case-study-is-there-a-secret-to-producing-hit-songs-aab8c2dc64c1/</a>
- In 6 groups (3-4 students). 3-4 min in class presentation (corresponds to # of students per group, 1 slide/min per student)
- Use Announcement for free platforms for slides
- To kick-off, the questions for each group are provided by TAs.
   Audience will ask theirs after your presentation.
- Audience:
  - 1. Smart 7-9-year-old
  - 2. Your colleagues at Data Science in another (competing!) department
  - 3. Marketing/Sales
  - 4. Music Producer
  - 5. CTO
  - 6. CEO

# **HW3 – Presentation in class**

- 1. Pretend that will be participating in a Data Conference and have a booth there. In your booth you should have a *poster* to "hook" the visitors who are passing by to stop at *your* booth. You should also have an in-depth *interactive* material for those who do stop by. Thus, your assignment consists of <u>two parts</u>, please read below.
- 2. You starting point for the poster is either the presentation (7 slides min) or the poster that you or your team have created in the past, related to working with data. Again, if you present your poster in a group, at least one student in the group needs to be the "original" owner of the slides or of the the poster.
- 3. Presentation is in Class. Starting point is **135** points.
- 4. You will work in groups of 2-3 students (3 max!) or on your own, you need to **email your group preferences** to TA Sophia, <u>deadline is Tue 4/1 at noon</u>; otherwise, she will assign the groups if she does not hear from you.
- 5. Your overall presentation time (Part 1 + Part 2) is 4min for a group of 2 students and 6min for a group of 3 students. That way, every student must present approx. for the same amount of time.

# HW3 Part 1

#### Materials you MUST use for your Poster

- 1. "Original" slides or the poster you or your group member created in the past
  - 1. Deck or poster you (or your team member) created some time ago that you can share!
  - 2. 7 slides minimum if the slide deck is the starting point for the poster.
  - 3. If other people were involved, check if you need to ask their permission to share!
- 2. The book "Storytelling with Data" by Cole Nussbaumer Knaflic.
  - a. While working on your poster and deciding on visuals, use information from the book, Chapters 2 (already used previously!), 3, 4, 5, 6 and 8
  - b. Points will be **deducted** if materials from these Chapters are not used, with special attention to new chapters.
  - c. Chapters 9 (case studies) are optional but highly recommended
- 3. Utilize recommendations from watching this video
  - https://www.youtube.com/watch?v=1RwJbhkCA58
  - 30 points will be deducted if video is not utilized.
  - QR code mentioned in video doesn't need to take so much space.
- 4. Slides by Dr Purna in Reading folder on Canvas about the Posters.

### Assignment (10 points): submit your "original" poster or "original" slides by 4/8

# **PART 2: Interactive**

- Part 2 is about using an interactive approach to supplement your poster so that your audience can follow your demo (e.g., using a website you create, or interactive demo, etc.). BE CREATIVE!!!
- Part 2 should be between 1-2 minutes, but not less that 1min
- Included in overall, 4-6 min presentation

# **HW3 Presenting Your Poster**

When presenting your poster, you **must** <u>articulate how you made decisions</u> on your updated approach, including your visual choices (for examples, you can refer to the book or the lectures) including **showing side-by-side 1-2 major decisions you made**. (No need to show small updates!).

- You are expected to use **between 30sec and 60 sec** to show the updates (using "before" and "after") you made.
- The <u>visual choices</u> you made will be evaluated (and voted on), specifically:
- 1) Is your presentation more visually captivating for your conference audience (vs the "original" slides or poster)?
- 2) How quickly your audience can grasp the main idea you are presenting?
- 3) Is your visual <u>effective enough</u>, meaning how easy it is to read your graphs and visualizations as related to the story you are telling? (See the book!
- 4) How much <u>clutter</u> is there? ONLY key and critical information should be included! See Chapter 3 in the book on *how to eliminate the clutter*!

<u>Part 1 of the</u> presentation should be 2-4min, depending on the number of students in your group

#### O<sup>6</sup>-Benzylguanine Inhibits Tamoxifen Resistant Breast Cancer Cell Growth and Resensitizes Breast Cancer Cells to Anti-Estrogen Therapy

Joshua Smithi, George C Bobustuci, Rafael Madero-Visbali, Jimmie Coloni, Beth Isleyi, Jonathan Tickui, Kalkunte S. Srivenugopal and Santhi Konduri<sup>1</sup>

\*Cancer Research Institute of M.D Anderson Cancer Center Orlando \*Texas Tech University Health Sciences Center, Amarillo, TX



#### Abstract

Endocrine therapies using anti-estrogens are least toxic and very effective for breast cancers, however, tumor re tumorifen remains a stambling block for successful therapy. Based on our recent study on the involvement of the protein MGMT in papersatic cancer (Clin Cancer Res. 15, 6087, 2000), here, we investigated whether MGMT overexor (BG)) at a non-toxic d resistant breast cance is to tamosifee using

# Posters rarely

need abstracts levels were significant using a specific siRNA correlation between 3 increased MGMT eng-

decreased ER-u expression, whereas tamorifen alone and fulvestrant alone increased and decreased the same respectively. However, all these treatments increased the pay\*\* mRNA and protein expression significantly. BG inhibited tamorifen resistant breast cancer prowth in a dose-dependent manner and it also resentatived resistant breast cancer cells to antientrogen through (TAM/CI). These combinations also enhanced the cytochrometic release and the FARP cleavage, indicative of apoptosis. In breast cancer smoographs, BG also or a combination of BG with tenoxides or fair-entrous caused significant tumor growth delay and immunohaletochromistry revealed that BG inhibited the expension of MGMT, EF. w. ki-dy and increased part\* staining. These findings suggest that MGMT inhibition may provide a novel and effective app overcoming tamosifes resistance.

#### Introduction

Recent advances in breast cancer research have identified key pathways involved in the repair of DNA damage induced by solition described, as substant of the offer causer of solitical carry guidelines according to the region of the contribution and the contribution of the contribution allytation at this site and is responsible for protecting both humor and normal cells from alkylating agents. MGMT is expressed constitutivel d and levels are up

to 4-fold higher than inhibited AGT and pe important observation showed that BG binds more potent than any directly with both cyte transfer of beard gree

tamoxifen resistant ce

# Text dissolves into tenylganiae (BC) onto the a series of sectic inpact. They intimidating,

boring gray Interestinaly, several a 3 fumor suppressor 33 function is often the success of some inactivated or supprestreatments. However, whether or not this is mediated by suppression of MGMT expression has yet to be determined. To date, the cross-talk between MGMT and ER-alpha (and the link to pgg expression) has not been explored in drug (i.e., tamoxifen) resistant breast tumors. The anti-extrogen tamoxifen is the most commonly used treatment for patients with estrogen receptor positive breast cancer. Although many patients benefit from tamonifen in the adjuvant and metastation

esting, resistance to this endocrine therapoetic agent is an important clinical problem. The primary goal of personal data was investigate the investment of anti-estrogen drug resistance and to design new thempories strategies for ground problems. The problems of the mental solution that MOMT expression is increasing in the service strategies for ground problems. inhibition of MGMT by BG significantly improves TAM-sensitivity.

#### Results

Prolonged Treatment of Tamoxifen Increases MGMT Expression: We developed a tamoxifen resistant MCF-7 cell line by using prolonged treatment of tamostics on the parental ER-positive breast cancer cell line, MCF-7. Tamostics-resistant MCF-7 cells proliferate at rates similar to the parental MCF-7. Prolonged treatment of tamostics cuto MCF-7 cells increased MCMT expression compared to parental MCF-7 cells by a field [Fig. 3].

Knocking Down ERa Enhances MGMT Expression in Tamoxifen Resistant Knocking Down ERs Enhances MGMT Expression in Transoxifen Resistant Rerest Camer Cells: it is not known without ERs and MGMT inscriptionally regulate each other in tanonifen resistant breast cancer cells. We therefore investigated whether down regulation of ERs has any effect on redesignmen MGMT expression in these cells. As expected, downragalistics of ERs using specific siDSA significantly reduced ERs precision levels in three cells. Western bits catalysis was performed and the results in the left panel (Fig. 2A) shows that silencing of ERs increases MGMT expression in the cell, and letterningly, the results in the right panel (Fig. 2B) since increased MGMT mRNA levels were increased as assessed by oRT-PCR. These data suggest that ERo-mediated signaling functions to repress MGMT gene exp

Transcriptional Regulation Between McMT and pgg: Previously, it was reported that pgG negatively regulates McMT is breast cancer cells. Therefore, we addressed whether or not selecting the pgg andmaces endogenous McMT transcription. Transmitten resistant MCFT cells were transferred with wither pgg atXXx (pgg-XII) (Fig.-XI) or McMT atXXx4 (McMT-KIX) (Fig.-XI) and passed with Novelectic atXXx (pgg-XII) (Mg-XI) or expectation was consistently interceed in pgg knock down cells, with different reportionants thereing a – Sail anguestation (Fig.-XI) and an expected, including down McMT-XII decreased McMT-XII (municipides where as pgg-atXX (e.g. were unabliented to Mg-XII). There were decreased to the CFL (A). These results outlier that pgc can regulate McMT-XII and transcriptions out (Fig.-XII). These results outlier that pgc can regulate McMT-XII. the transcriptional level.

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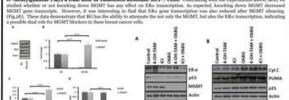
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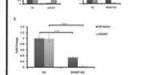
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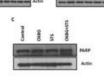
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O'-Benzylguanine Plays a Dual Role in Tamoxifon Resistant MCF-7 Cells: Contracting with the experiments above, next, we

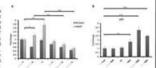




# Too small and too much

Ob-Reasylguanine Modulates pgg Down-Stream Targeted Protein Expressions: Excoraged by the results reported, we trevesligated the effect of combination therapy on endogenous MOMT, ggg, and ERs protein expressions, As expected, Bit decreased MDRT expressions, while combination therapy (4-0-17-AM or ICI combined with Bit) significantly decreased MDRST and ERS or expressions. Bit diese or in combination with tensories or ICI decreased ER-a expression, whereas transities alone and EX alone increased and develored the same reportedly (Fig.3-A). Expressions was slightly alternal and FCI treatment. The reduction is again expression by ICI alone was reversed when Bit was combined (Fig.3A). We investigated the effect of BC on proteins which are involved in ord cycle regulation, appelosis in tumoridae resistant breast cancer cells. All these treatments against surface and the protein or expression (Fig.3B). FNAs expressions was also increased with these treatments. Hence, FVAA may have translated to the analysis of the expression of the protein the expression theory. FAAE is the expression of the protein of the protein translated to the expression of the expression theory. FAAE is the expression of the protein of the expression of the expression

O6-Benzylguanine Modulated Transcriptional Targets in Tamoxifen Resistant Breast Cancer Cells: The effect of combination therapy on endogenous MGMT mRNA levels we aso staid. Quantitative real-time PCR (qRT-PCR) resulted that anti-extrogens (TAM/ICI) increased the MGMT expression while the combination therapy decreased it compared to control levels. EEG transcription was decreased compared to controls with all these tovatments (Fig.4A). Surprisingly, pgs and PUMA mRNA was significa-



### Caption not aligned with figure

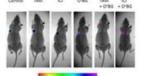
In order to investigate the effect of BG on pgg functi-performed lucifenses reporter assays. Tamordien to MCF-7 breast cancer cells were transfected with p promoter construct in presence or absence of BG (targe of p53). These results clearly demonstrate the significantly enhanced pgs transcriptional activity by in these cells (Fig.4D).

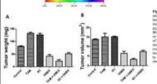


gylguanine Inhibits Tamosifen Resistant Breast Cancer Cell Growth and Increase Resistan neer Cell Sessitivity to Anti-Estrogen Therapy (TAM/ICI): Detailed necopey revealed that all immors in the breast. The data summarized in Table 1 show the daily BG alone or in combination by stancoliny/ICI significancyl decreased median tamor volume and regist ms compared with tha CI touted and control mice. The combination of BG with tamoxifen or ICI produced th in tumor volume as compared with metrol mice (83,99 mm², 9,23 mm3 (TAM-8G) (83,99 mm², 31.60 mm² (RI-8G), respectively; p<0.0001). Tumor weight was also ewited with contribination therapy as compared with control mice (B.1.23 mg, 22.30 ng (BC1-BG), esspectively, p-0-0-0-03), (Telba i.) Body spaced with control mice. No visible flow metastases scope) in all treatment groups.

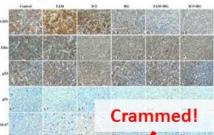
#### Crammed!

in vivo effects of BG (alone or in combination) wit proups were processed for routine histological and IIIK ors from mice treated with BG alone or in combination with tamosifen/ICI exhibited a significant recrease in MGNT, ERa, ki-67 as compared with tamors treated with tamorsifes, i/C alone or control group. pg3 spression was not much allowed in these treatment groups. In sharp contrast, the expression of p21 was officiantly increased in tumors from mice treated with BC either alone or in combination with tumovil The images were analysed by Imaged (NHI) and MGMT, ERG, pg3, pg1 and ki-67 expressions were quantified b the ImmunoRatio plugin. (Fig.5).





need and more treated with termentims, V.T. BG, or both termentar, V.T. and BG. The sections were introduced size expression of MCDET, ERG, pth, pen and lister. Tennon these mice termed with



#### Conclusions

- s. In the present study, we observed that prolonged treatment wi Service (MGMT):
- inducing the DNA repair protein O'-methylguanine DNA met Decreasing the expression of MGMT by exposing breast car estrogen therapy (tamoxifen and NT 182,780). cells to BG sensitized these cells to acti-We also observed that combination therapy of anti-estrop MGMT derived drug (tamoxifen and ICI) resistance but and MGMT blockers not only oversame the
- MGMT derived drug (tamoxifen and ICI) resistance but by decreasing entrogen receptor expression and restor increased the efficacy of anti-estrogen therapy of the functional activity of pgg in tamoxilen resistant breast cancer cells.

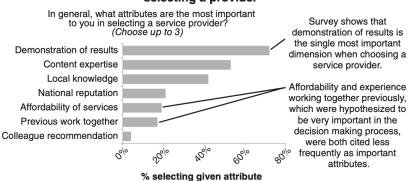
Acknowledgements

# 2021 THE MITRE CORPORATION. ALL RIGHTS RESERVED. FOR INTERNAL USE ONLY. Get rid of clutter

(naflic, Chapter 3

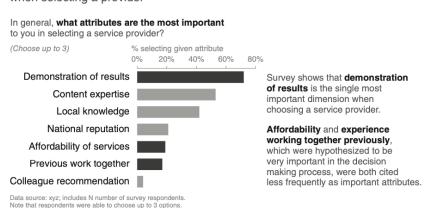
#### These visualizations both show the same data:

# Demonstrating effectiveness is most important consideration when selecting a provider



Data source: xyz; includes N number of survey respondents. Note that respondents were able to choose up to 3 options.

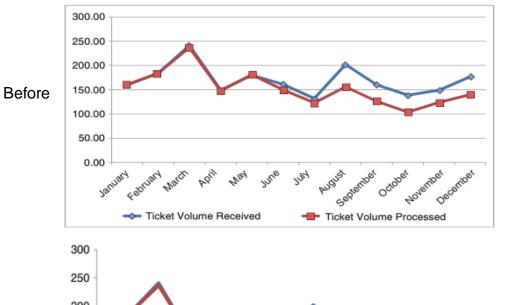
# **Demonstrating effectiveness** is most important consideration when selecting a provider

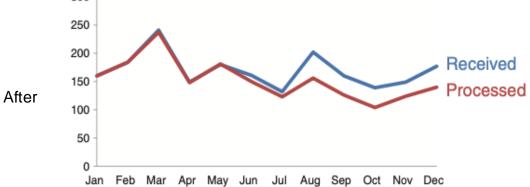


# 2021 THE MITRE CORPORATION. ALL RIGHTS RESERVED. FOR INTERNAL USE ONLY. Suggested Steps to de-clutter

Knaflic, Chapter 3

- Remove chart border
- 2. Remove gridlines
- 3. Remove data markers
- 4. Clean up axis labels
- 5. Label data directly
- Leverage consistent color





Read Chapter 3 in the Storytelling book!

# **HW3 Grading**

### Points will be deducted if

- The book material and the video are not utilized as specified above
- Part 1 or Part 2 is not prepared or is not referred to during your presentation
- Your visual choices are not effective as defined above
- Some team members have much shorter parts to present then others
- Your presentation is too short or too long: your total time (part 1 + part 2) cannot exceed 4 min for 2 students, and 6 min for 3 students' groups
- You did not show & explain the "before" and "after" the updates to the "original" slides or poster you made and the reasons behind those

### Points will be added if

- Your presentation is voted one of the "best" by the audience
  - Four best posters (Part 1) as voted by students and TAs. (10 points)
  - Four best interactive parts (Part 2) as voted by students and TAs. (10 points)
- Your visual choices are exceptionally efficient
- Points will be added to you as an audience member, for the valuable feedback (as we've done in the past)