How to make a Great Poster

Dr. Lisa White
lwhite@sfsu.edu
Associate Dean
College of Science and Engineering

San Francisco State University
Purpose of a Poster

To communicate/publicize to others your

- research/experiment results
- study reports
- project outcomes
- organization features
- business plans

in a way that is

- clear
- effective
Effective and Clear Visual Communication

- Is able to catch as many viewers’ attention as possible
- Is pleasing to the eye
- Is able to capture viewers’ interest in less than 15 secs
- Is readable, succinct, and well organized
- Is informative
- Is legible from 3-6 feet
- Is a conversation starter
Types of Posters

Horizontal and vertical panels

Multiple vertical panels

Using a Windbreak Habitat Model Across Broad Landscapes:
The Effect of Local Landscape Composition and Geographic Location
George Eles\*, John Poshe*, Raymond O'Connor*, Jeff Ray*
Types of Posters
Types of Posters
Using a Windbreak Habitat Model Across Broad Landscapes: The Effect of Local Landscape Composition and Geographic Location

George Hess¹, John Poulsen², Raymond O’Connor³, Jeff Bay⁴

1. Windbreaks as Habitat

2. Regional Evaluation of Windbreaks

3. Bird Species Richness Index

4. Validating HBBM Model

5. Results of Validation

6. Failure of the Model

7. Local Landscape-Scale Effects

8. Conclusions

Acknowledgments: This study could not have been done without the dry-land project support by the Nebraska Agricultural Service. The National Weather Research and Development (NWRD) and the Nebraska Agricultural Resource Management Project (NARM) provided the infrastructure to conduct this research. The project was funded by the National Science Foundation (NSF) and the U.S. Department of Agriculture (USDA).
A Framework for Assessing the Condition of Agricultural Lands

George Hess, Ann Helkamp, Mike Munster, Steve Peck, Lee Campbell, Betty McQuaid, Steve Shafer

Mission: To develop indicators of the condition of agricultural lands within an ecological framework, and to monitor and evaluate this condition on a regional basis.

The ecological condition of agricultural land is defined by its productivity and the degree to which valued beneﬁt and abiotic resources are conserved and protected. Agricultural land in good condition is productive and does not compromise natural resources. Sustainability is the ability to maintain good conditions over time.

Sustainable agriculture has been discussed, studied, and documented in numerous papers. Definitions vary from broad and encompass ecological, social and even policy dimensions. Although these dimensions are interrelated, each may be measured separately.

In our efforts, we sought to establish not only the ecological aspects of sustainability.

The foremost goal for agricultural lands is to produce food and fiber for human needs. Other desired outcomes can be considered goals for the larger landscapes and sometimes function as constraints on production. These include clean air and water, wildlife habitat, and aesthetically pleasing landscapes.

People place values on agricultural lands that may be enhanced or diminished to be contrasted.

In making an assessment, condition is compared for each indicator. An overall condition may be reported, but depends initially on the relative weighting of the goals for agricultural lands.

For sustainability, our assessment involves crop productivity and stewardship practices.

Potential Indicators for Annually Harvested Herbaceous Cropland

As a starting point, we chose to concentrate our efforts on developing indicators for annually harvested herbaceous cropland — land planted with crops that are harvested every year. Whether the plants are annual or perennial. Common examples are corn, wheat, soybeans, alfalfa, and vegetables.

We also endeavored to supplement, rather than duplicate, existing efforts. The conceptual framework is flexible enough for a non-agricultural indicator based on data from other monitoring efforts. For example, an erosion indicator could be developed using the USDA Natural Resources Conservation Service’s Natural Resources Inventory data.

Field Scale Indicators

Crops

Soil

Air

Vegetation

Water

Water & soil

Crops

Productivity

Stewardship

Fields are for crops . . .

. . . but landscapes are for all of us.

Acknowledgements: The EMAP Agricultural Lands Resource Group builds on the many individuals and organizations that made the effort possible. The lead state in this initiative is North Carolina, and the major effort includes the USDA Natural Resources Conservation Service, National Agricultural Statistics Service, and Natural Resources Conservation Service, the U.S. Environmental Protection Agency, North Carolina State University, University of Delaware, Oregon State University, University of Minnesota; and, well, I guess the list of organizations is pretty long, too. Thanks to all!!

1. North Carolina State University, Forestry Department, Raleigh NC
2. Duke University Medical Center, Durham NC
3. North Carolina State University, Department of Plant Pathology, Raleigh NC
4. USDA Natural Resources Conservation Service, Raleigh NC
5. USDA Agricultural Research Service, Raleigh NC

28 March 1997
**EFFECT OF HEMODIALYSIS ON HEMOSTATIC PLATELET FUNCTION IN UREMIC PATIENTS**

Shard C. Mathur, M.D.¹, Jonathan L. Miller, M.D., Ph.D.¹, Sriram S. Narasipura, M.D.³
Departments of Pathology¹ and Medicine², SUNY Upstate Medical University, Syracuse, NY

**Introduction**

Anemia and platelet dysfunction are major contributors to the hemostatic diathesis seen in patients with end-stage renal disease (ESRD). Following hemodialysis, there is frequently a clinical improvement in bleeding. However, such clinical improvement is not typically accompanied by any consistent change using standard clotting assays. Evaluation of platelet function has shown a decrease in platelet membrane glycoprotein (GP) IIb and a functional improvement in GPIX/GPIIb following hemodialysis. Currently, used laboratory tests separate the elements of primary hemostasis (primary response) from secondary hemostasis (coagulation cascade) and therefore do not sensitive to the effect of platelet procoagulant activity and platelet microparticle formation. We evaluated the effect of hemodialysis on microparticle formation using a new laboratory instrument, the Cell Signature Analyzer (CSA) (Kxylen Corporation, Scarsdale, NY).

**Methods**

Blood was collected before and immediately following hemodialysis in two patients with ESRD. Platelet GP Ib activity was analyzed by platelet aggregation in response to incremental concentrations of ADP. Hemodialysis was further evaluated by the CSA instrument. This instrument uses a constant-flow system to determine the rate of microparticle formation and platelet-dependent fibrin clot formation for non-anticoagulated whole blood. Whole blood flows through a tube that is punctured by a needle to cause a sudden increase in shear stress and activation of hemostatic pathways (figure 1). Because it uses non-anticoagulated whole blood, the system is sensitive to platelet procoagulant function and platelet microparticle formation. Statistical significance was assessed using a two-tailed Student's t-test for paired data. Differences in pre-dialysis and post-dialysis values were considered significant at p < 0.05.

**Results**

Screening tests of secondary hemostasis (prothrombin time, partial thromboplastin time, and thrombin time) were not significantly different following dialysis. Post-dialysis values of factor V and von Willebrand factor were significantly higher than pre-dialysis values (figure 2).

Microparticle formation was evaluated using flow cytometry in two patients. In response to a stimuli analog agonist ADP, there was a dramatic increase in platelet microparticle following hemodialysis (figure 6).

**Discussion**

The bleeding diathesis of ESRD and the effect of hemodialysis on it are incompletely understood. Traditional measures of platelet function show a decrease in platelet GP Ib activity following hemodialysis. Current laboratory tests are limited by the fact that they separate primary hemostasis from secondary hemostasis and therefore do not evaluate the role played by platelets in the coagulation cascade through their procoagulant activity and microparticle formation. The CSA instrument shows a strong trend toward shedding of the microparticle-dependent fibrin formation for whole blood. This assay is sensitive to detect microparticle procoagulant function and platelet microparticle formation. Improvement in these parameters, therefore, provides a possible mechanism by which hemodialysis provides an improvement in the bleeding diathesis of ESRD. Preliminary data on platelet microparticle formation from these patients support this hypothesis. Studies are ongoing to assess platelet procoagulant function following hemodialysis.

**Conclusions**

- Shear-dependent platelet microparticle formation is defective in ESRD patients.
- Hemodialysis results in decreased GP Ib activity mediated by decreased GP Ib mediated platelet aggregation in response to shear stress even in the presence of increased von Willebrand factor levels.
- Platelet-dependent fibrin clot formation is defective in ESRD patients despite normal screening studies of secondary hemostasis (prothrombin time, partial thromboplastin time).
- Platelet-dependent fibrin clot formation is improved by hemodialysis, which may be related to improvement in platelet procoagulant activity or platelet microparticle formation.
Before starting

- **Know the intended audience**
- **Decide what the main message is**
- **List text, diagrams, tables, photos, etc. to be included**
- **Budget the space needs for various elements**
- **Sketch a layout**
Who is the audience?

- People in your specialty
  (may use jargon and other professional shortcuts)
- People in related fields
  (minimize jargon but may assume basic knowledge)
- People in unrelated fields
  (assume no prior knowledge; use the most basic terms)
What is the message?

- State the main point(s) and conclusion(s) succinctly (a catchy but descriptive title, an effective abstract or introduction)
- Focus everything else on those points and conclusions (do not try to include everything in a poster)
Should you use text, diagrams, tables or photos?

- Utilize all but be strategic and space-conscious.
- Follow: “A picture is worth ten thousand words”
- Tables are more effective than text, figures are better than tables.
- Use short sentences
- Check spelling and grammar
- Do not forget titles and legends
Three Panel Poster Layout

Banner (Title)

1. Introduction
2. Methods
3. Results
4. More Results
5. Discussion/
   Conclusion
6. Numbering the panels to guide readers with the flow
Three Panel Poster Layout

Use of arrows instead of numbers
Three Panel Poster Layout

Use of elements of different sizes, shapes, and proportions.
Poster Templates, Pictures and Graphics

Balance and White Space

Your poster should have a good visual balance of figures and text, separated by white space. Balance occurs when images and text are reflected (at least approximately) across a central horizontal, vertical, or diagonal axis of symmetry.

Text Blocks
Keep text blocks to below 50 words.
A banner shows the title, author(s), and affiliation. The banners should be 10–12 inches tall and 4 feet wide with 1-inch margins on all sides. The title should be concise and depict the project. It should be legible at 20 feet.
Abstract

- Optional on a poster depending on the desire of the author or the requirements of the organization.
- It must accurately summarize the hypothesis or research question, the methods, the data, and the conclusions described in the other sections of the poster.
Introduction

- The introduction should address the question, “Why did you start this project?” It defines the topic and explains what was studied and why—the rationale and importance of your study.
- It includes your research question(s) and/or the hypotheses you tested.
- Make sure that the significance and originality of the work are very clear.
Methods, materials, equipment

- This section should explain what you did. Ideally, this section gives enough information to allow another researcher to replicate the study.

- It should have enough detail to allow another researcher to judge if the study design was adequate and thus to judge the validity of your study.

- Flow diagrams work well instead of written text. List major materials and equipment used.
Results

- This section presents what you have found in your research or the outcome of your project.

- It may include statistical analyses, tables and/or figures showing your data.

- Arrange your results in a logical order according to the point(s) you want to get across.

- Present only enough data to support your conclusions.
Discussion/Conclusion

- The discussion section, if included, tells what you think your results mean.
- This section may also present supporting evidence from published reports. Any contradictory findings should be addressed, and the limitations of your study should be described.
- The conclusion section should directly relate to the research question and hypotheses and supported by the results.
General suggestions

Layout

➢ **Use headings to help readers find key sections.**

➢ **Balance the placement of text and graphics.**

➢ **Use white space creatively to grab viewers’ attention.**

➢ **Follow the normal flow of reading: top to bottom and left to right.**

➢ **Use column format to make poster easier to read in a crowd.**
General suggestions

Text and Font

➢ Write simple, easily readable texts.
➢ Omit extraneous text by using key words and phrases.
➢ Highlight important words or phrases by switching styles: bold, underline, italic, shadow, etc.
➢ Do not use all capitals except in headings.
➢ Do not use too many different font types.
➢ Use large fonts: 18-point for the smallest text, 24-point for normal text, 28-point for heading, 48-point for title.
General suggestions

Photos, figures and tables

- Should be clear, self explanatory, uncomplicated, and of sufficient size.
- Tables and figures must have titles.
- Figures must include legends.
- Use good color contrast in figures.
- Borders on photos and figures can enhance presentation
General suggestions

Color and contrast

- Use color to draw attention to particularly important parts of your poster (but do not use everywhere)
- Use pleasing contrast to reduce eye strain and make the poster more legible and interesting
- Note that printed color may be different from what appear on the computer monitor
Useful Website

http://www.aspb.org/education/poster.cfm

Software

MS Word, MS PowerPoint, Adobe Illustrator, LaTeX, InDesign
On Showcase Day

- Be prepared to give a 2-minute presentation to judges
- Focus on the big picture, explain why the problem is important, and use the graphics to illustrate and support your key points.
- Limit jargon, judges may be from a mix of specialties in the discipline.
- Arrive early at the display site. Set up display before 1 pm.
- Bring the poster and all accessories.
- Bring copies of a handout (optional)
- Be there between 3 and 6:30 pm.
Thank You

Have fun making posters and enjoy the Project Showcase