

Communicating with Data

September 14, 2011

Today's Class

- Audience, message and format considerations
- Charting is a language
- Decoration vs. content - why fancy or pretty isn't better
- Basic style guide
- Applying the style guide – cleaning up a chart in Excel
- Rookie mistakes to avoid
- Choosing the correct chart
- Dashboard/Scorecard considerations

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Define Your Target Audience

- Who cares about this information?
- Is there a primary and a secondary audience?
 - Are the audiences different?
- What level of literacy (number of messages, complexity, use of graphics, technical language) is right for the audience?



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Determine Key Data Messages for Audience

- What do you want them to know from this information?
- What is the “so what” in the data?
- How will you display the data?
- Can they find your message quickly and easily?
- Are you following a standard agency guideline?



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Determine Means for Sharing Data

- What is the best way to reach the audience?
- How will you distribute the chosen method?



Choosing Appropriate Methods for Audience

AUDIENCES / USERS

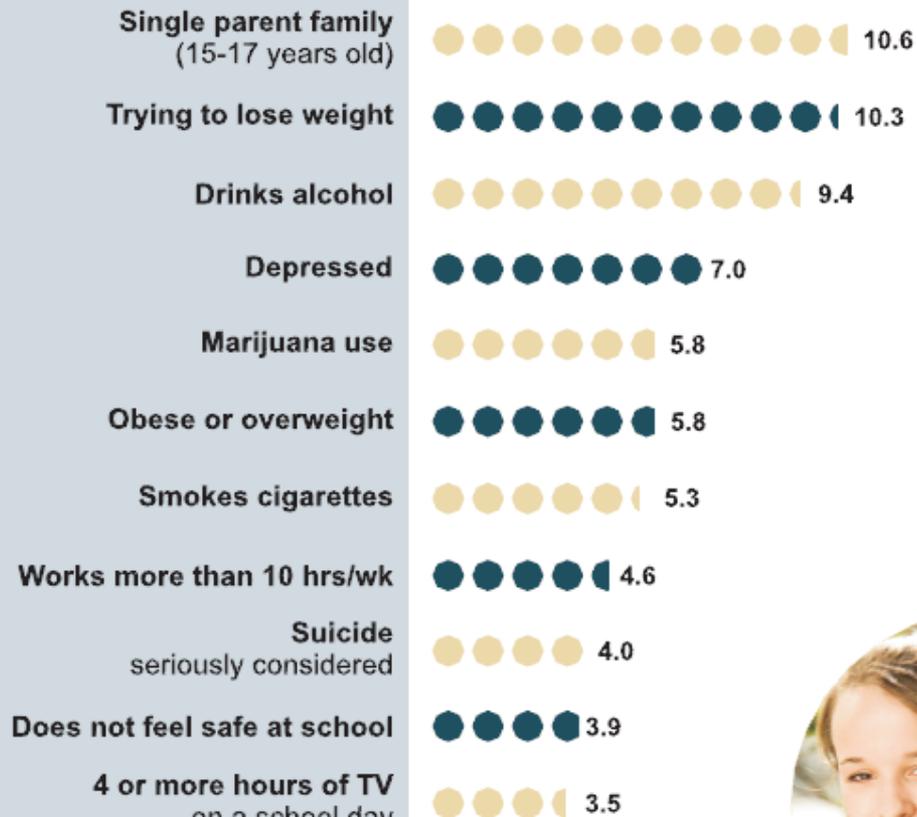
	POSSIBLE COMMUNICATION FORM										
	Technical Report	Executive Summary	Technical Professional Paper	Fact Sheet	Newspaper Insert	Data Tables	Newsletter / Publication / Article	News Release, Press Conference	Public Meeting (Presentation)	Staff Workshop (Presentation)	Brochure, Poster
Funding agencies	■	■	■	■							
Program administrators	■	■	■	■		■	■	■		■	
Board members, trustees, other management staff		■		■			■	■			
Advisory committees	■	■	■	■		■			■		
Political bodies (city councils, legislatures)		■		■			■	■			
Community					■		■		■		■
Current clients				■			■		■		■
Healthcare Professionals		■	■	■			■				
Program service providers (teachers, technicians, etc.)		■		■		■	■			■	■
Organizations interested in program content		■	■	■		■	■		■		
Media		■		■	■		■	■			

Learning | Distractions



High School 10th and 12th Graders, Spokane County

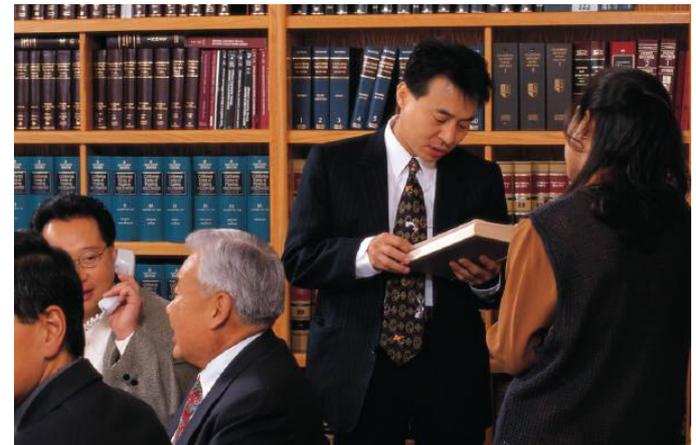
In a class of 25



Develop Materials and Review

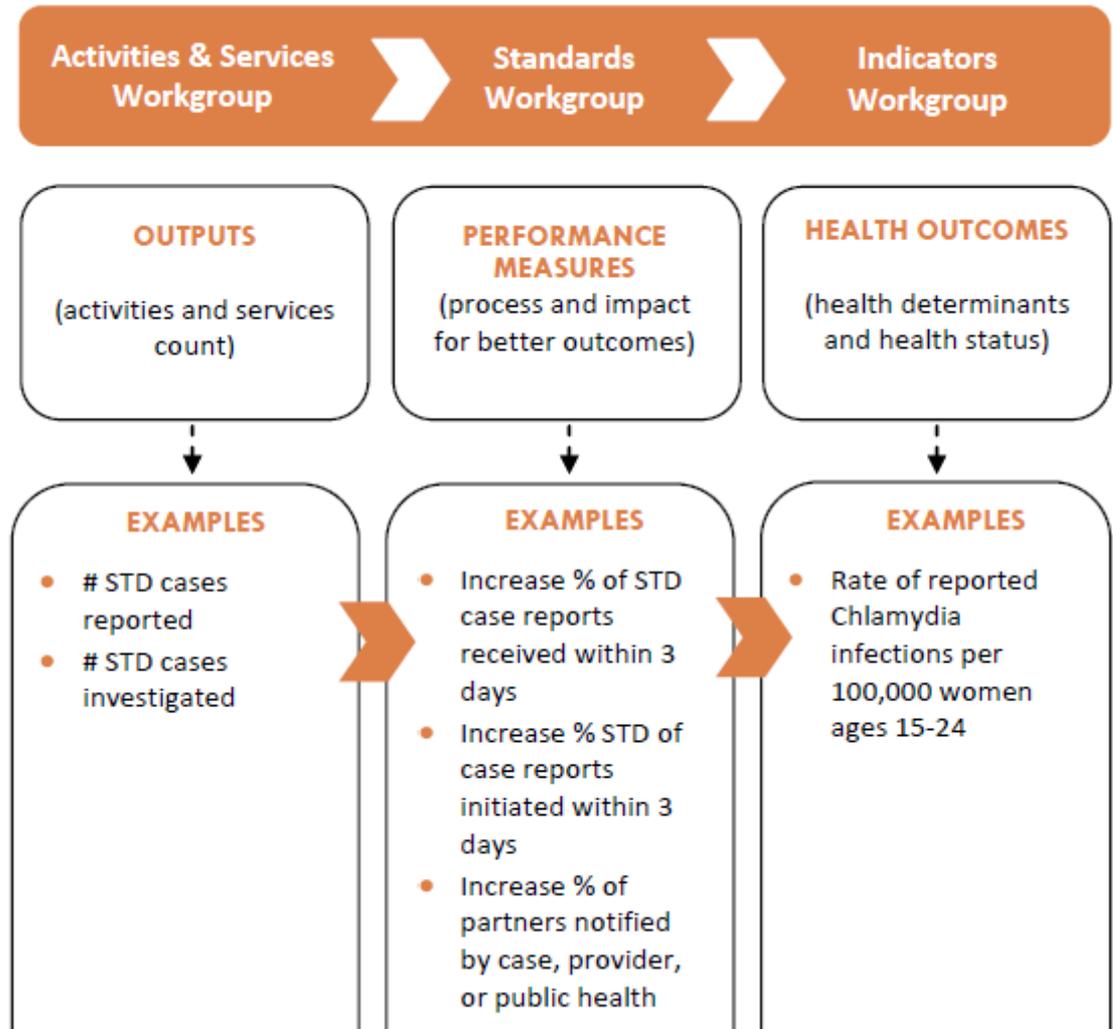
Don't skip the review process

- Use the hand-out “Principles of Well-Written Data Materials” to review your documents
- Who within the target audience could review for clarity?
- Did the reviewers pick out your key messages?



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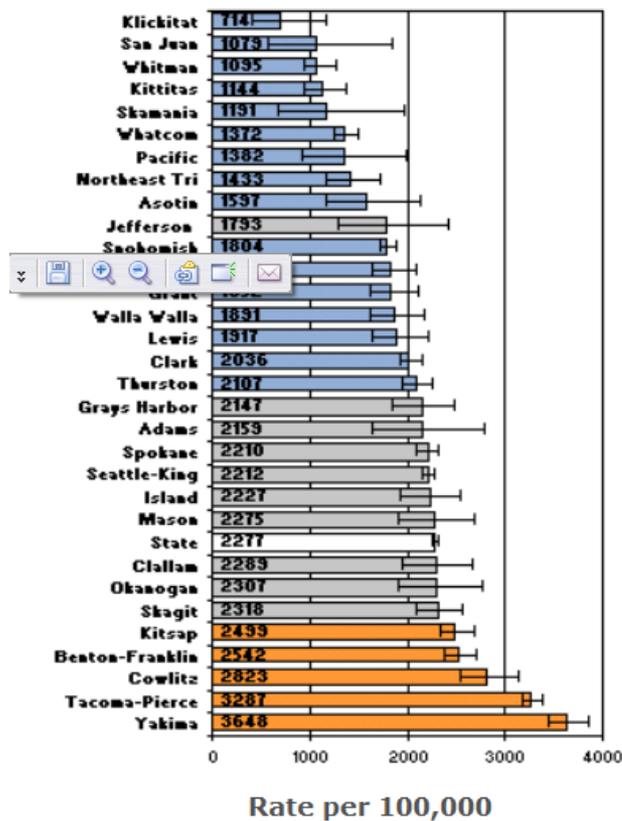
Communicating with Data



Example Presentation

Indicator: Reported Chlamydia infections

2007 - 2008



WASHINGTON STATE LOCAL PUBLIC HEALTH INDICATORS

Indicator: Rate of reported Chlamydia infections per 100,000 women ages 15 to 24

Key

- better than state*
- similar to state
- state
- worse than state*

*Statistically significant difference
($p < .05$)

Example Presentation

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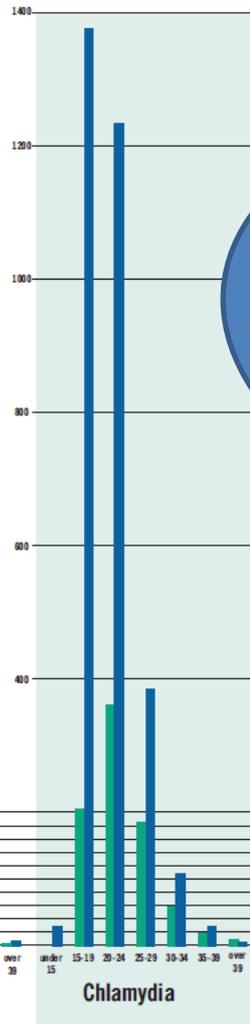
Sexually-Transmitted Disease (STD)

Since 1997, the rate of reported STDs has been rising steadily in our community, state and nation.

Young females make up the vast majority of reported cases of sexually-transmitted disease in Spokane County - 75 percent of cases during the 1997-2001 time period. The most common diseases are Chlamydia, gonorrhea and genital herpes. Chlamydia and gonorrhea cases are concentrated most in 15-19 year old females, while genital herpes is concentrated in the slightly older 20-24 year old female age group.

Among males, sexually-transmitted disease cases are distributed more evenly among age groups. However, males over age 24 have a higher rate of gonorrhea than females.

Males account for 97 percent of the reported AIDS cases diagnosed in Spokane County between 1997 and 2001.



Young females 15-24 years of age make up the vast majority of reported cases of STDs in Spokane County, specifically Chlamydia.

Example Presentation

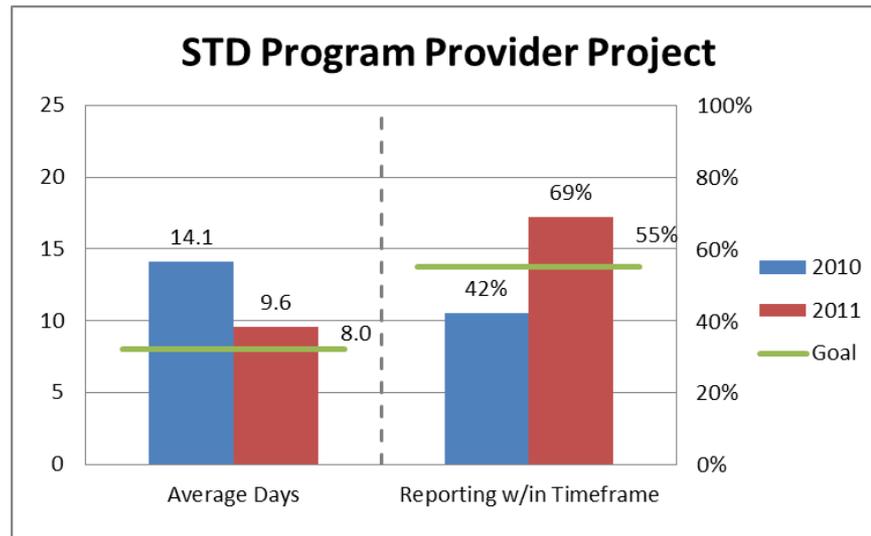
Division Dashboard

STD Program Performance Measure:	2009 Baseline	Current Status	Target	Variance
Increase percentage of contacts of STD exposures where treatment was obtained	70%	72%	80%	-8%

Quality Improvement Project

Performance Measures:

1. Decrease average # days to report STD cases to PH
2. Increase % clinics reporting STDs within county average

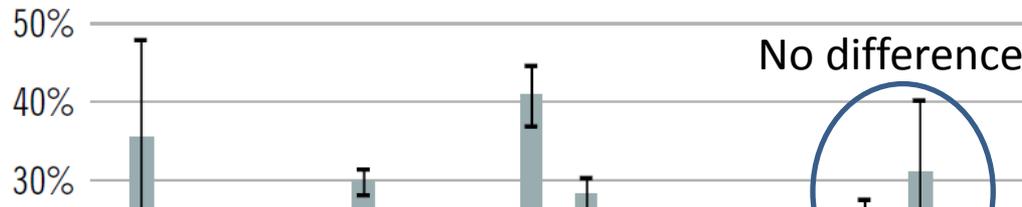


A Word about Confidence Intervals

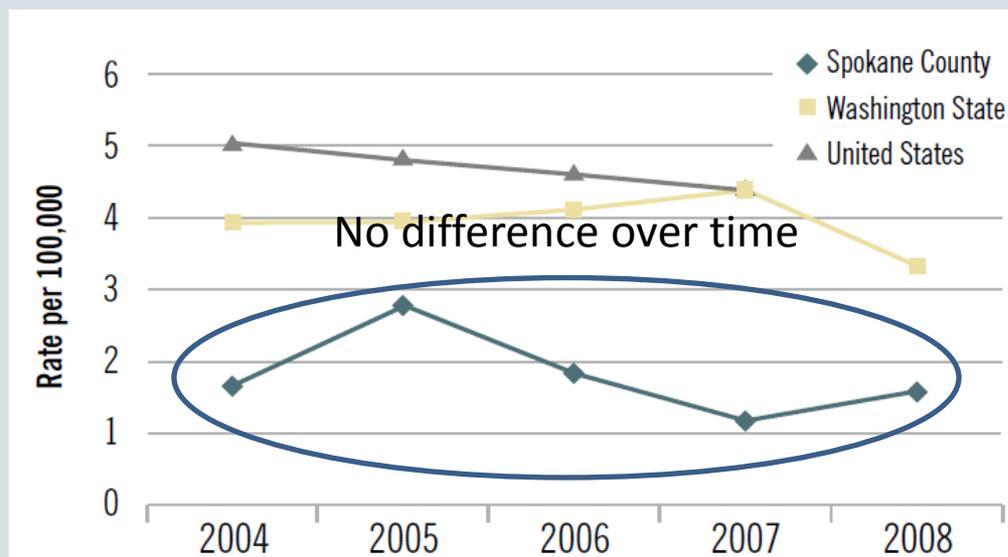
Spokane Counts Health Status In

Demographic Disparities in Maternal Smokers
Spokane County, 2007

Obese Adults

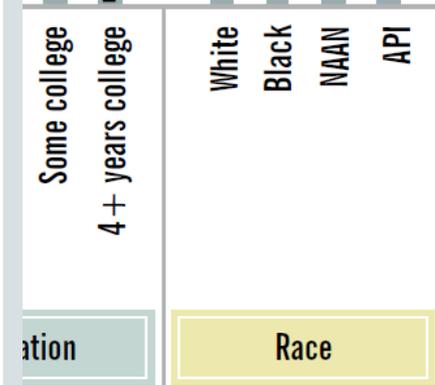


Tuberculosis



Source: Behavioral R.

Source: Washington State Department of Health;
Centers for Disease Control and Prevention



Health Statistics
Islander

The Language of Charting

Risks of poor charting

- Poor communication with financial stakeholders and the public
- Jeopardizes all process improvement and performance management initiatives
- Increases the risk of wasting resources by acting on every data point, or missing something significant

Good charts lead to deeper conversations about important topics.

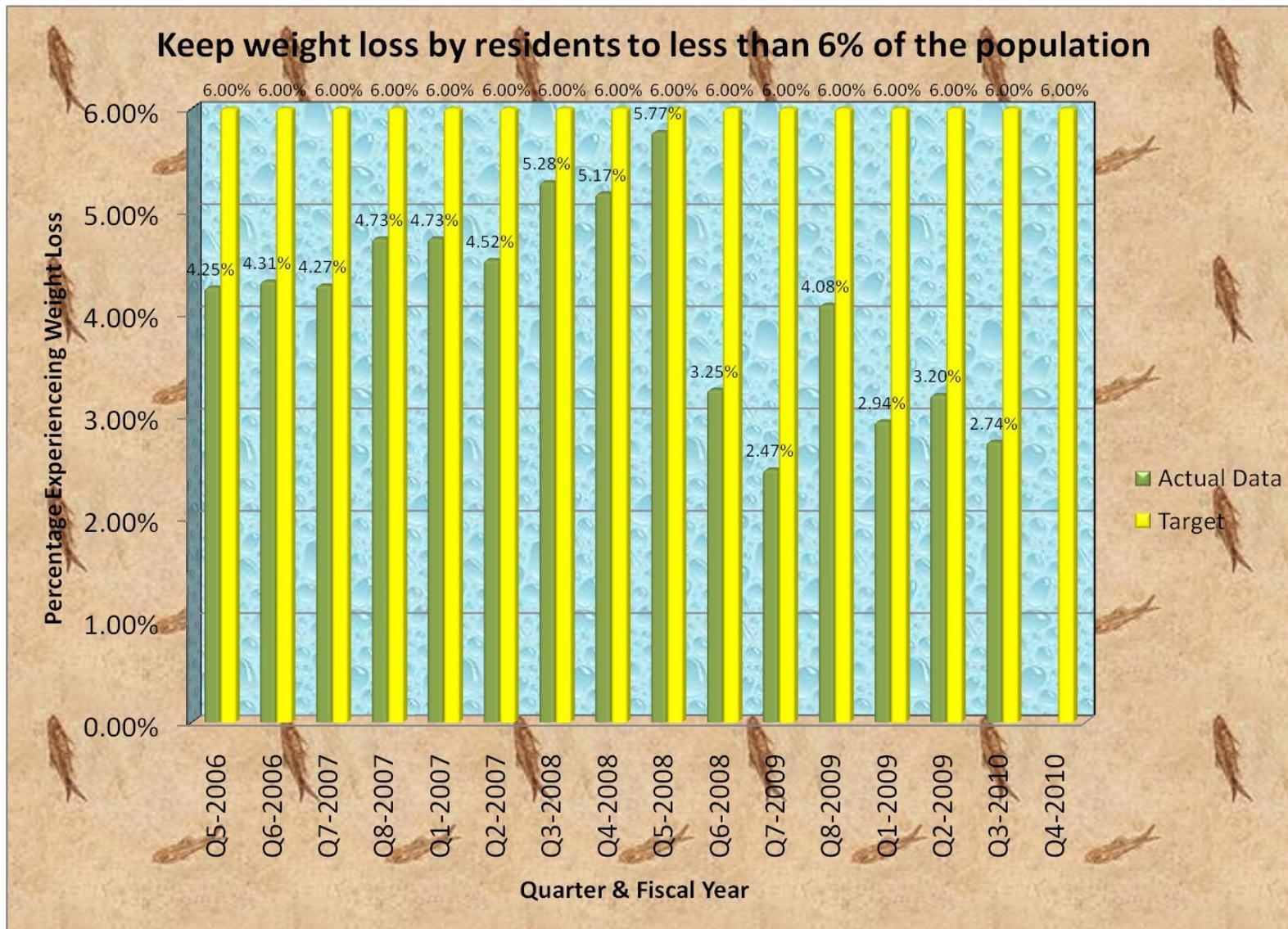
- “What does it mean?”
- “What should we do about it?”
- “Did it work?”

Decoration vs. Content

I HOPE everyone understands my intent. I do not want to CRITICIZE anyone's *past* charting. Good charts focus *the* reader's attention on the *message* and DATA, **NOT** the *chart* itself.

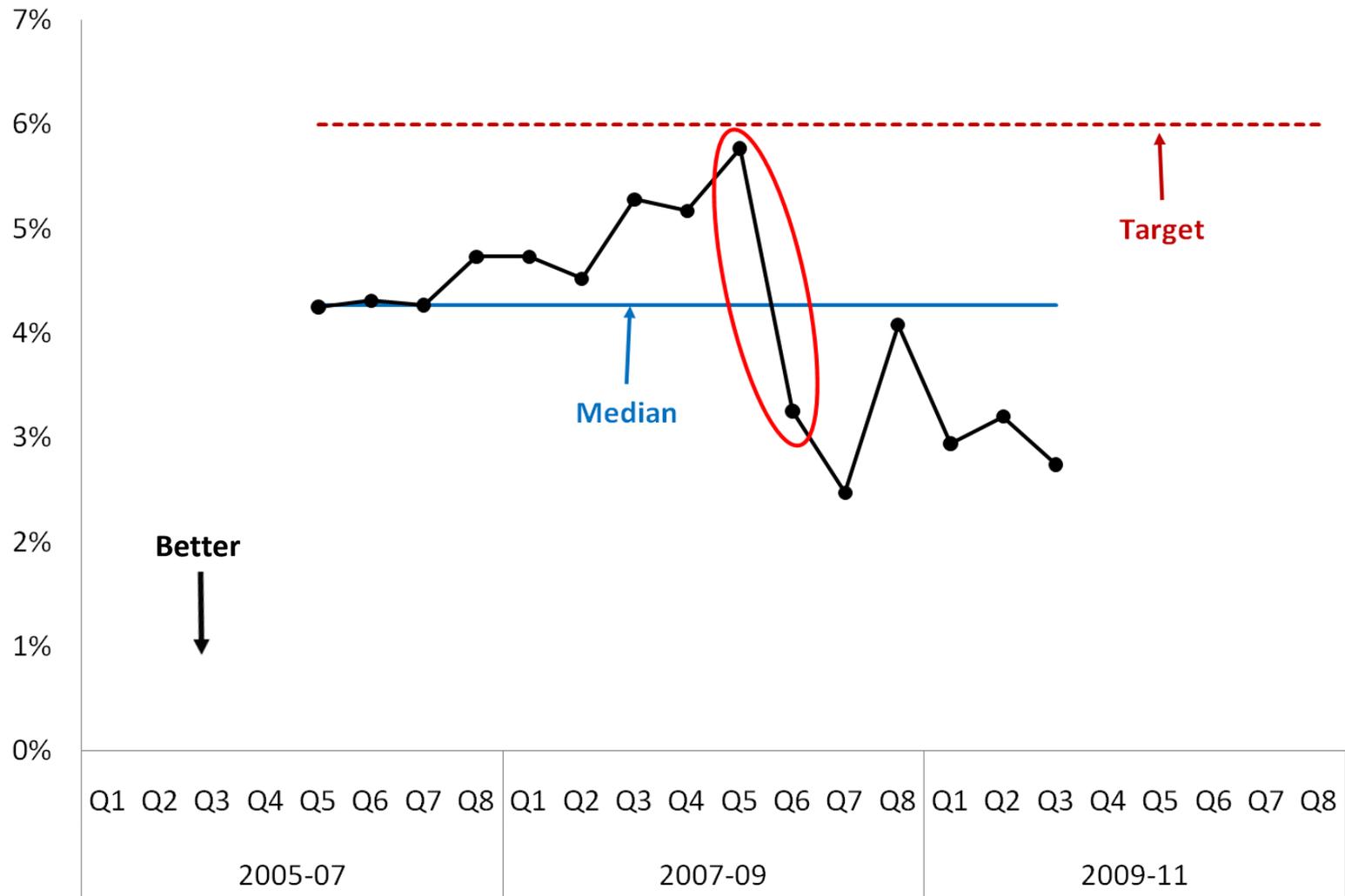
I hope everyone understands my intent. I do not want to criticize anyone's past charting. Good charts focus the reader's attention on the message and data, not the chart itself.

Decoration vs. Content – Just for Fun



Decoration vs. Content – Much Better

Keep weight loss by residents to less than 6% of the population

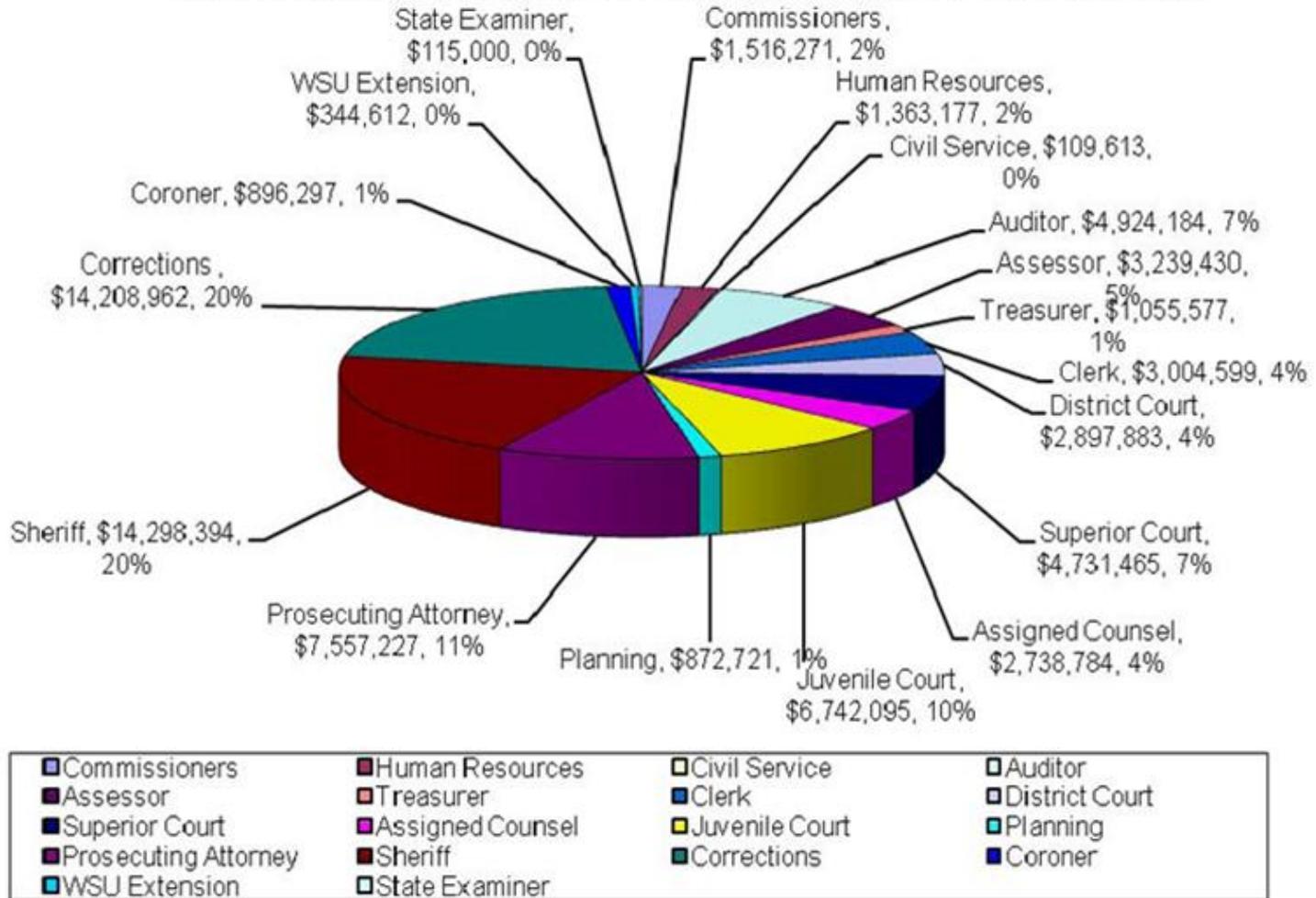


Basic Style Guide Principles

- Less is more – try to eliminate any non-value adding visual elements (grid lines, backgrounds, borders, unnecessary labels)
- Don't rely heavily on colors or color schemes
 - Reds & greens – color blindness
 - Photo copy (black and white) compatibility
 - Colors have diverse cultural meanings
- Avoid 3-D charts
- Try to avoid using pie charts
- Make your titles easy to read – no jargon or acronyms
- Show variation and differences, don't hide them
- Just because Excel can do it, does not mean you should

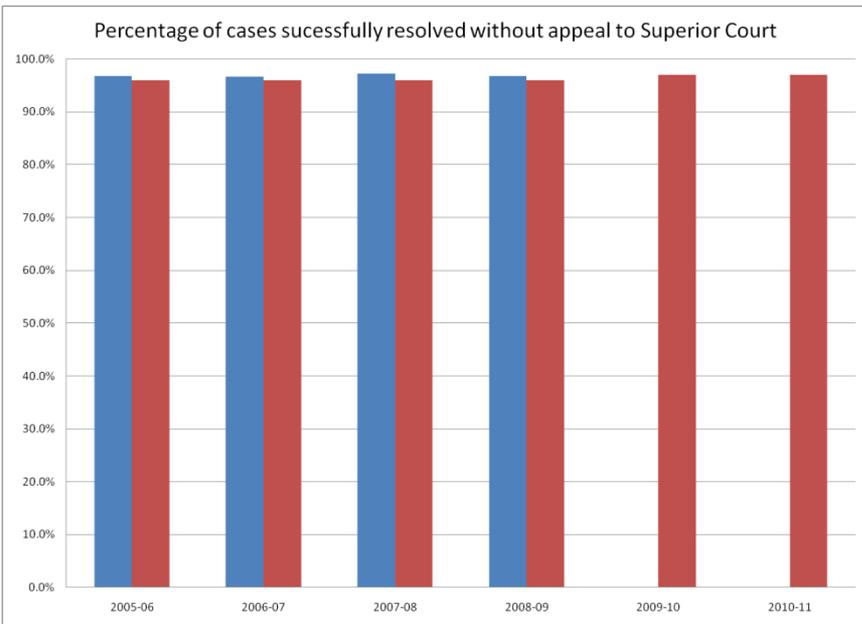
Good Intentions Gone Bad

2010 GENERAL FUND ADOPTED EXPENDITURES BY DEPARTMENT



Clean Up a Chart in Excel - Demonstration

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Percentage of cases successfully resolved without appeal to Superior Court	96.8%	96.7%	97.2%	96.8%		
Target	96.0%	96.0%	96.0%	96.0%	97.0%	97.0%

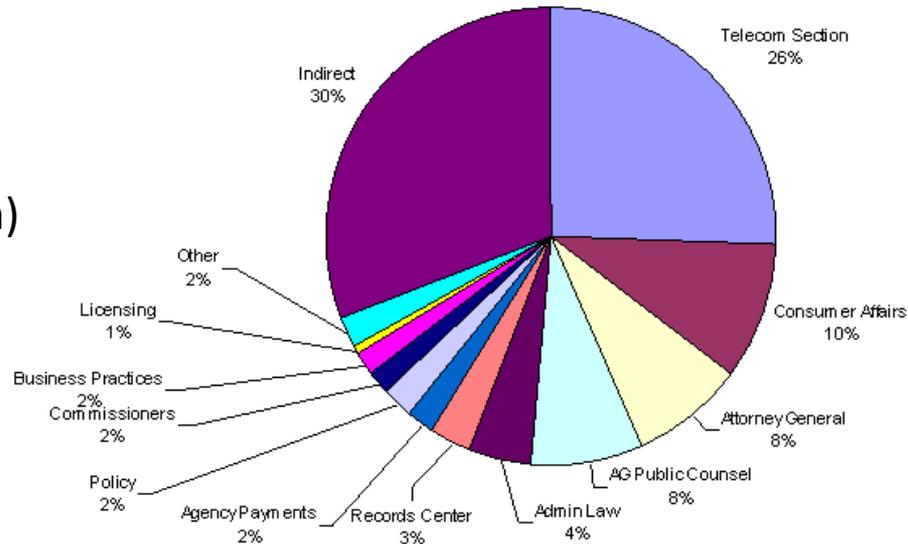


Rookie Mistakes to Avoid

Expenditures on Telecom Regulation, By Section
July-December 2003

Total Expenditures (6 months) - \$2.5 million

Pie charts with too many slices
(Pinwheel of Miscommunication)

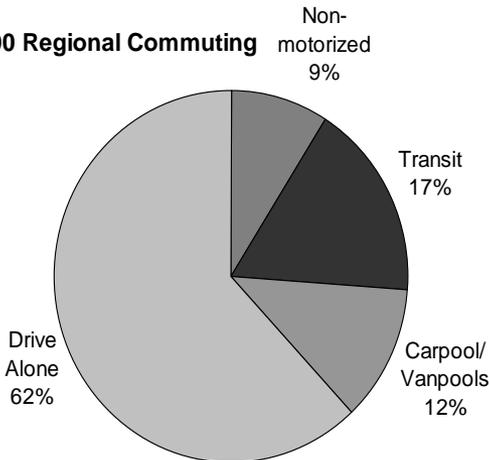


and

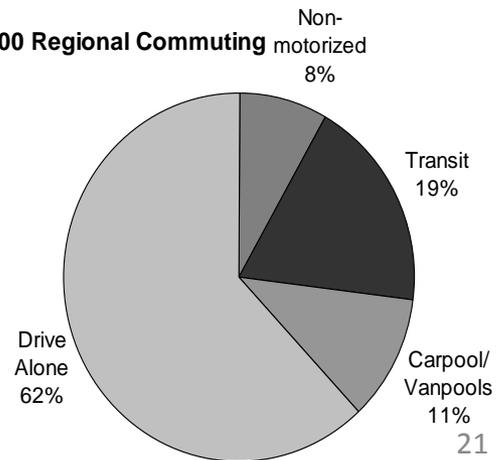
Making comparisons with pie charts

(When the slices are close to the same size)

1990 Regional Commuting



2000 Regional Commuting

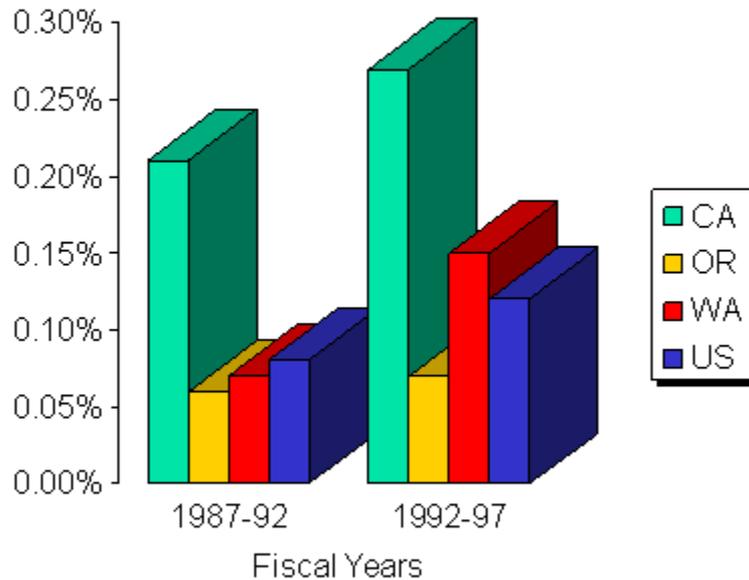


Rookie Mistakes to Avoid (cont.)

Using 3-D because it looks cool

- What's the value?

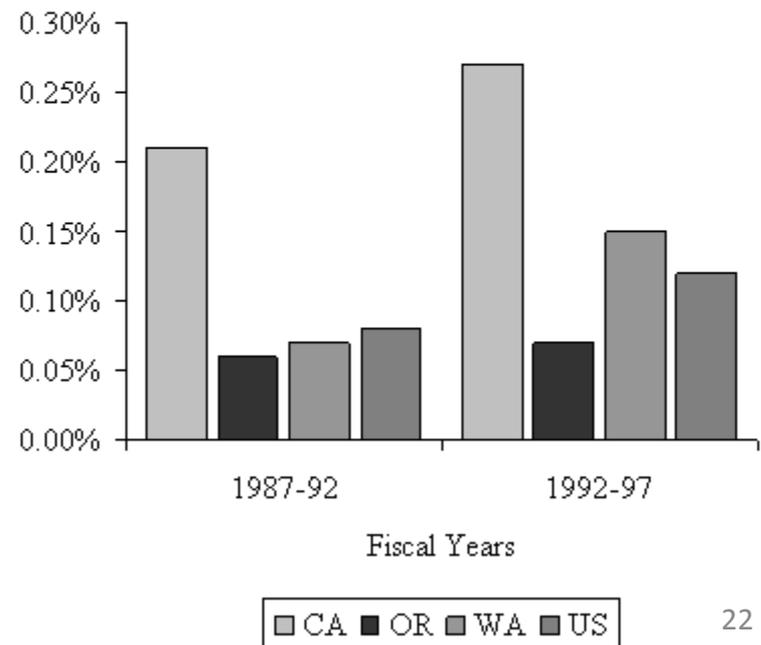
Percentage of Ag Land Converted to Urban Development



Overuse of color

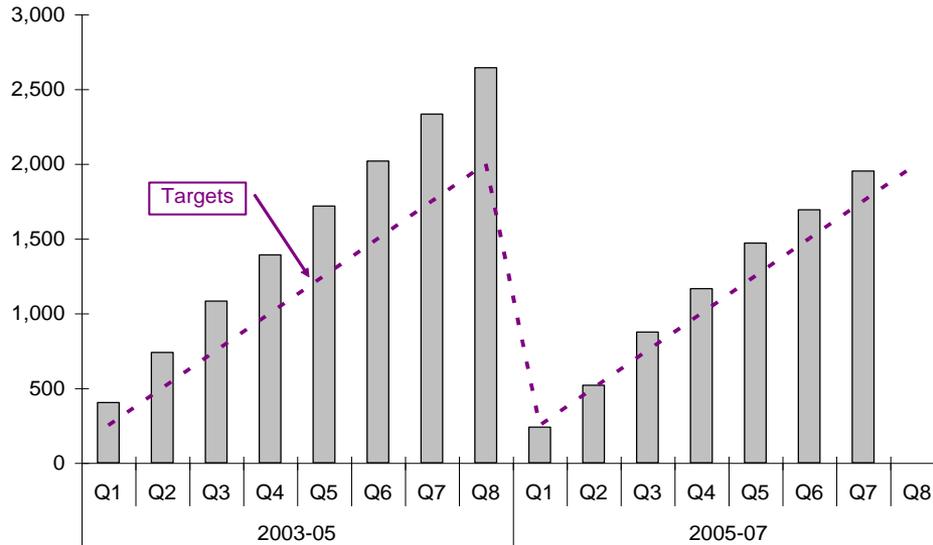
- Cultural awareness
- Color blindness
- Reprinting

Ag Land Converted to Urban Development



Rookie Mistakes to Avoid (cont.)

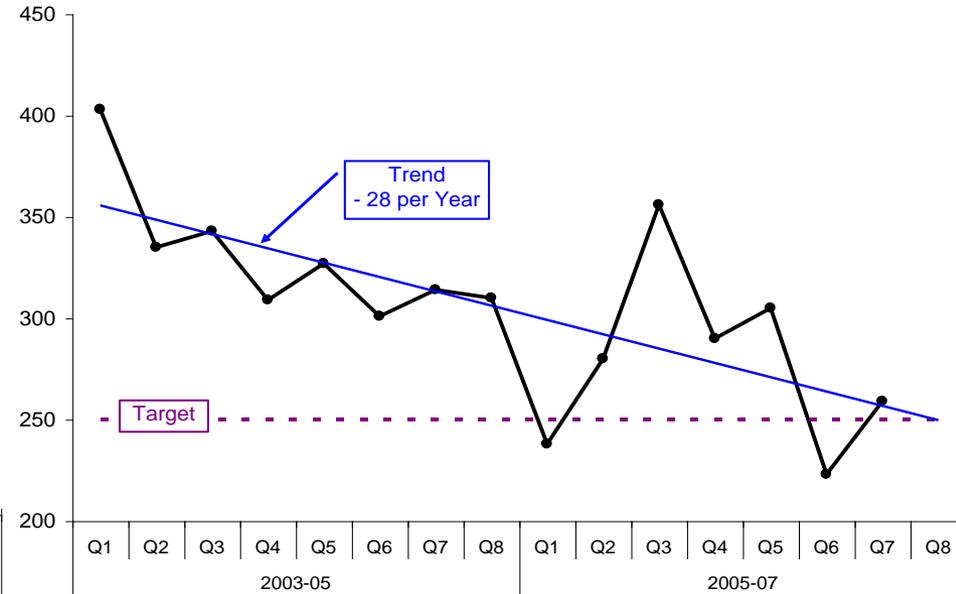
SE09 - Number of State Environmental Policy Act Assistance Actions (Cumulative)



Cumulative

- The target was exceeded almost every quarter
- The data resets every biennium

SE09 - Number of State Environmental Policy Act Assistance Actions



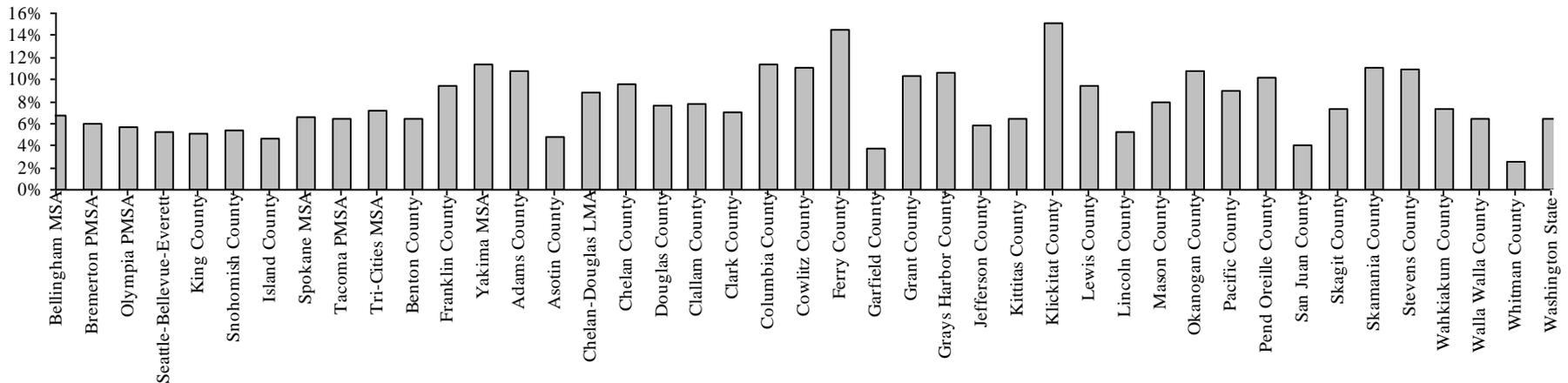
Non-cumulative

- Even though the target was exceeded in almost every quarter, there is an undesirable decreasing trend in the data
- Unless something is changed, future results are likely to continue the downward slide

Rookie Mistakes to Avoid (cont.)

Long lists are better as a table; Consider putting the data in descending order

Washington State Resident Civilian Labor Force (2001 Annual Average by State and County)



Washington State Resident Civilian Labor Force
(2001 Annual Average by State and County)

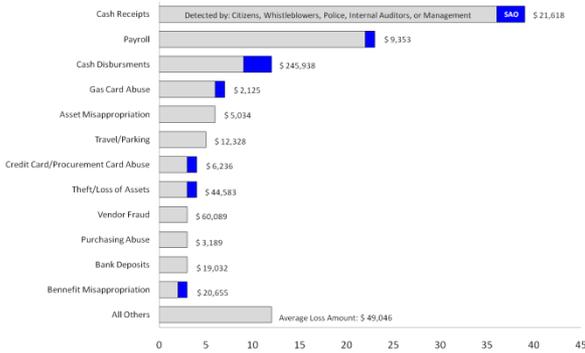
Geographical Area	Unemployment Rate	Geographical Area	Unemployment Rate	Geographical Area	Unemployment Rate	Geographical Area	Unemployment Rate
Klickitat	15.1%	Pend Oreille	10.1%	Tri-Cities MSA	7.2%	Snohomish	5.4%
Ferry	14.5%	Chelan	9.5%	Clark	7.1%	Lincoln	5.3%
Columbia	11.4%	Franklin	9.4%	Bellingham MSA	6.8%	Seattle-Bellevue-Everett PMSA	5.2%
Yakima MSA	11.3%	Lewis	9.4%	Spokane MSA	6.6%	King	5.1%
Skamania	11.1%	Pacific	9.0%	Benton	6.5%	Asotin	4.8%
Cowlitz	11.0%	Chelan-Douglas LMA	8.8%	Kittitas	6.5%	Island	4.7%
Stevens	10.9%	Mason	7.9%	Walla Walla	6.5%	San Juan	4.0%
Adams	10.8%	Clallam	7.8%	Tacoma PMSA	6.4%	Garfield	3.7%
Okanogan	10.8%	Douglas	7.6%	Bremerton PMSA	6.0%	Whitman	2.5%
Grays Harbor	10.6%	Skagit	7.4%	Jefferson	5.8%		
Grant	10.3%	Wahkiakum	7.3%	Olympia PMSA	5.7%	Washington State	6.4%

Choosing the Right Chart

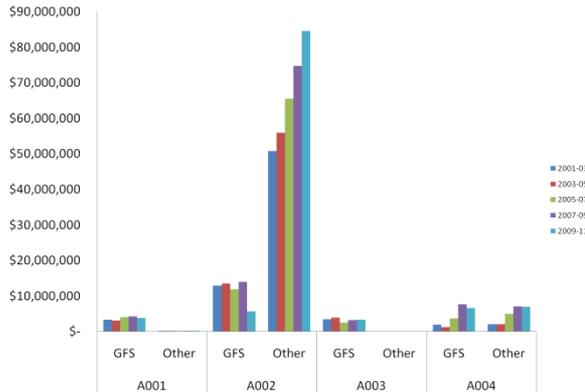
Making a Comparison
(More/Less, Bigger/Smaller)

Bar Chart

Number of Audit Reports Disclosing Fraud by Type (2006-09)



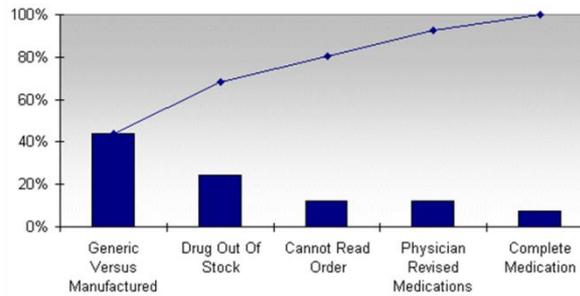
Budget Allocations 2001-2011



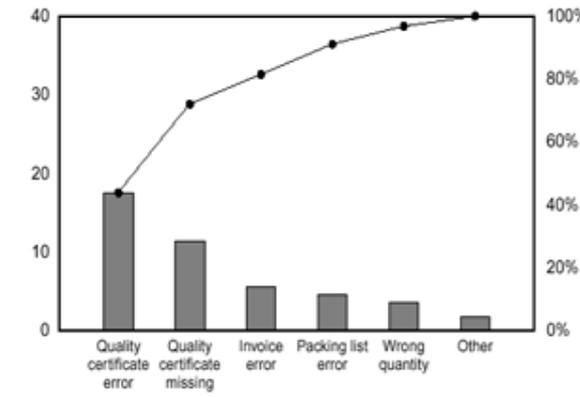
Process Improvement
(Problems/Root Causes)

Pareto Chart

Causes For Medications Not Being Delivered On-Time



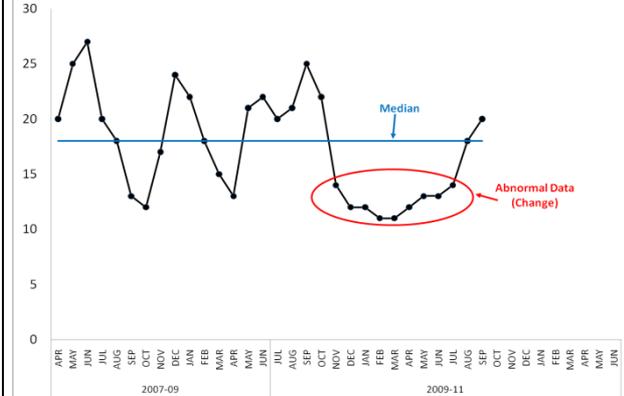
Types of Document Complaints
Second Quarter 2005



Performance
(Better, Worse, or the Same)

Run Chart

Number of Days to Process Vehicle Titles by Month



FINANCE & FACILITIES

F2 Administration • Capital Projects Office • Facilities Services • Financial Management • Treasury Group • University Audit

Operational Performance Dashboard

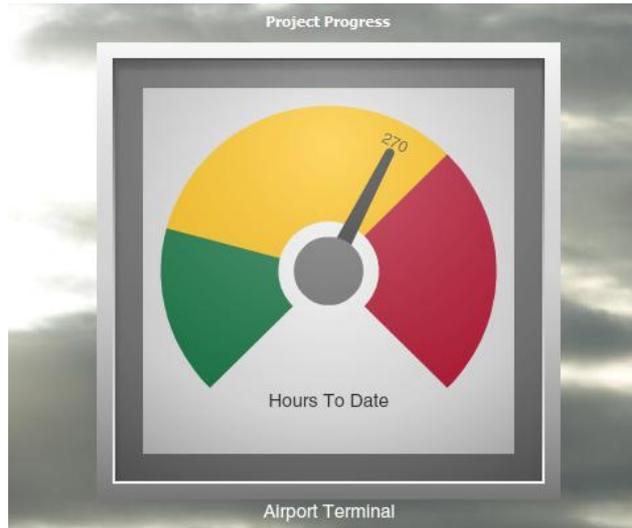
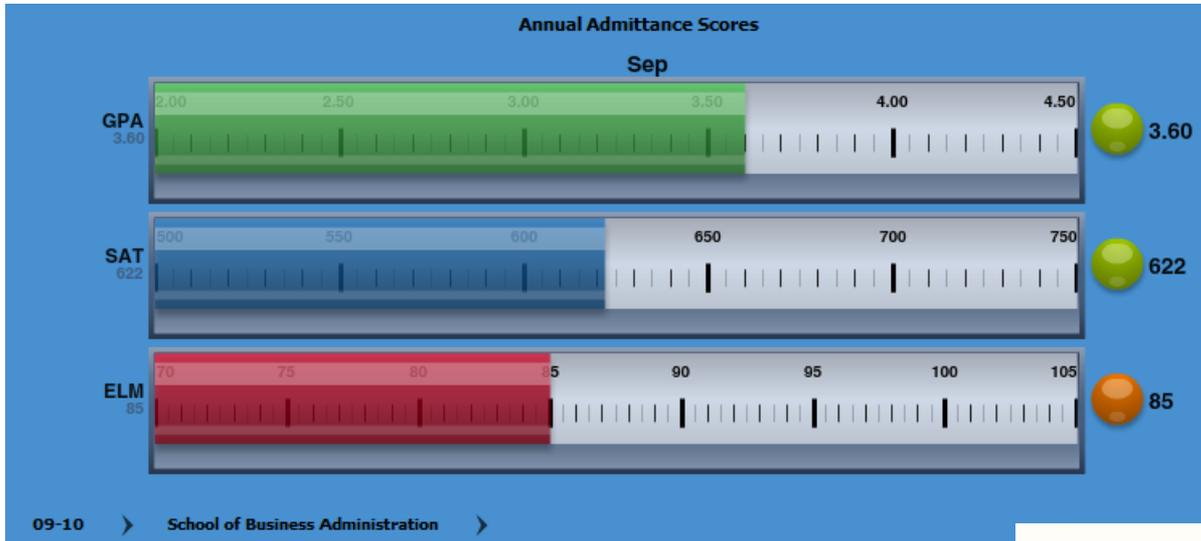
CUSTOMER				
PROCESS/THEME	MEASURE (Map Objective)	ACTUAL	TARGET	GAP
Instill Customer Confidence	1 Percent of Financial Aid Disbursed Within 1 st Week of Quarter (C1, quarterly)	79%	85%	-6%
Manage Bus. Growth	2 Number of Business Days to Set up New Budgets (C1, monthly)	12 days	12 days	No gap
Manage Business Growth	3 % Drive alone. Transportation Modes to and from Campus (C2, annual).	21.2% (2008)	20%?	-1.20%
Synthesize Information and Inform Campus	4 Customer perception: "FS employees effectively communicate with me," (C3, biennial)	70%	72%	-2%
Instill Customer Confidence	5 F2 Customer Satisfaction Survey, Overall Satisfaction	77.3%	75%	No gap
Monitor Client Satisfaction	6 Student Overall Satisfaction with SFS Services (C3, annual)	79.0%	64%	No gap

INTERNAL BUSINESS PROCESS				
PROCESS/THEME	MEASURE (Map Objective)	ACTUAL	TARGET	GAP
Operational Excellence	7 Annual Productivity: Finance & Facilities vs. Department of Labor	See graph	TBD	N/A
Purchase Goods and Services	8 Number of Invoice Discrepancies Over 30 Days Old (O1, monthly)	120	50	-70
Purchase Goods and Services	9 % of Online Invoices Paid Within 45 Days of Invoice Date (O1, monthly)	78%	85%	-7%
Manage Space & Infrastructure Projects	10 Closed Projects Cost versus Budget : over \$5M and under \$5M (O1, annual)	-14.00%	+/-10%	-4.00%
		-7.00%	+/-10%	No gap
Operate and Maintain Bldgs/ Campus	11a Carbon Footprint Reduction, in MgCO2e, Scope 1 and 2 Emissions (O4, quarterly)	10.20%	2.00%	No gap
Operate and Maintain Bldgs/ Campus	11b Carbon Footprint Reduction, in MgCO2e, Scope 3 Emissions (O4, quarterly)	13.80%	2.00%	No gap
Operate and Maintain Buildings; Campus	12 Water (gpd in 1,000) and Energy Conservation (btu/gsf), Seattle Campus (O4, quarterly)	1118gpd	1188gpd	No gap
		478btu	538.5btu	
Advise & Consult	13 Percent of M/WBE invoices paid within 45 days of invoice date	91%	85%	No gap

FINANCIAL				
PROCESS/THEME	MEASURE (Map Objective)	ACTUAL	TARGET	GAP
Control Costs	14 Utilities Cost Avoidance, Seattle Campus (R1, annual)	\$11.24M	\$8.78M	No gap
Control Costs	15 TBD	TBD	TBD	TBD
Control Costs	16 U.S. Postal Service Postage Cost Avoidance (R1, quarterly)	11.30%	8.50%	No gap
Control Costs	17 Cost-per-Paycheck (R1, annual)	\$1.00	\$2.25	No gap
Control Costs	18 eCommerce Utilization Rate (R3, monthly)	90%	90%	No gap
Control Costs	19 Custodial Services--Cost Comparison per GSF (R2, annual)	\$1.25	\$1.43	No gap
Manage Risk	20 Risk Management--Cost of Risk per Staff FTE (R3, quarterly)	\$424	TBD	TBD
Manage Investment Portfolios	21 Consolidated Endowment Fund and Invested Fund Performance Returns, CEF; IF (R3, quarterly)	-3.00%	-4.7%	No gap
		2.00%	1.00%	No gap
Manage Cost of Capital	22: Cost of debt relative to Internal Lending Rate (R3, quarterly)	4.40%	5.50%	No gap

STAFF LEARNING & GROWTH				
PROCESS/THEME	MEASURE (Map Objective)	ACTUAL	TARGET	GAP
Develop Staff	23 KPI: LEAN Orientation for Employees % of employees on LEAN teams; number of employees trained in LEAN	6.5%; 414	10%; 600	3.5%
Lead People	24 Percentage of staff highly satisfied with Internal Communication (4, 5); 2009 Employee Survey (S1, annual)	62%	63%	-1%
Lead People	25 Percentage of staff highly satisfied with Leadership (4, 5); 2009 Employee Survey (S2, annual)	63%	70%	-7%
Develop Staff	26 KPI: Staff Satisfaction with F2 Training: Metrics, LEAN, Personal Skills Development, and Orientation Courses (S.3)	1.58	1.25	-0.33
Lead People	27 Percent of staff highly satisfied (4, 5); 2009 Employee Survey "overall satisfaction" question (S3, annual)	71%	69%	No gap

Dashboards – Visual, Creative, and Interactive

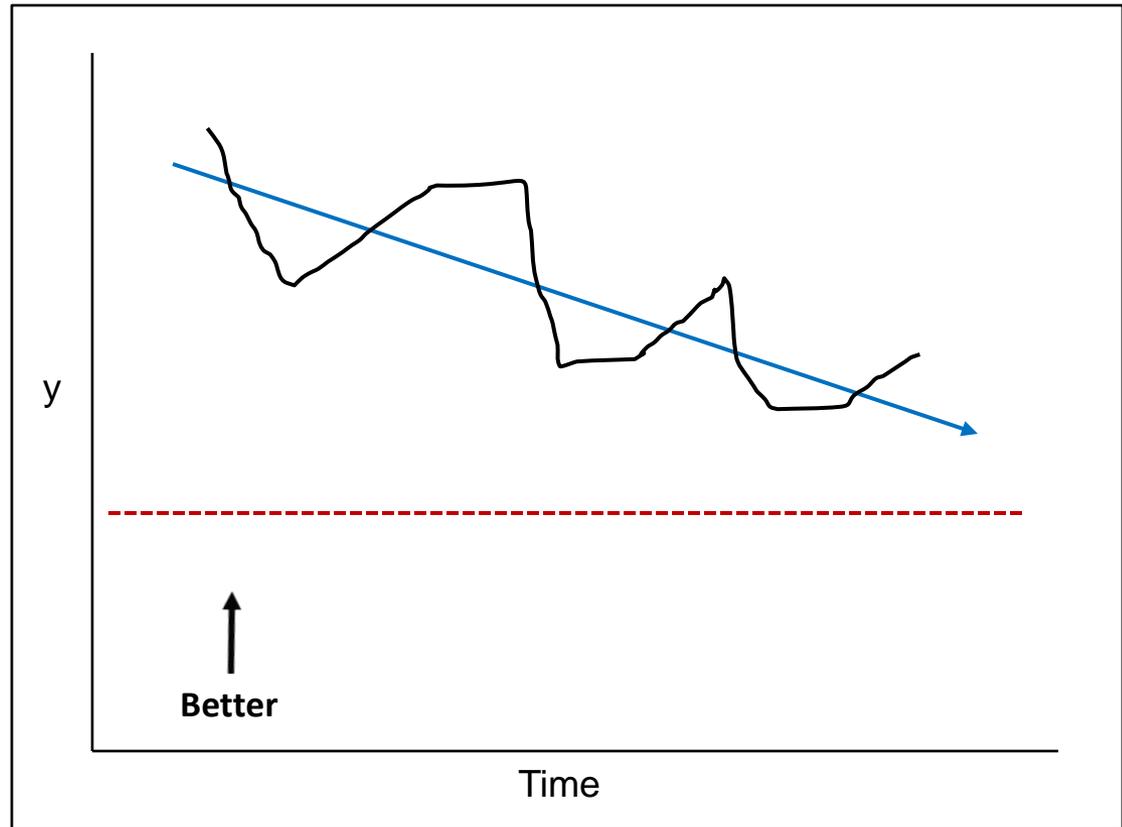


Scorecards – Summarize but don't Oversimplify

Actual data has never come in below the target, but the trend is stable and **undesirable**.

If you just base Red/Yellow/Green on whether you hit the target last quarter, the evaluation would be **Green**.

Is that enough information for management to make the right decision?



More Information - Resources

The Visual Display of Quantitative Information, Tufte, 2001.

Communicating with Data, T.S. Marshall & Associates, 2003.

Washington State Transportation Improvement Board,
www.tib.wa.gov

<p>Brian Willett Performance Analyst Washington State Auditor's Office (360) 725-9731 Brian.willett@sao.wa.gov</p>	<p>Lyndia Tye Director, Disease Prevention and Response Spokane Regional Health District (509) 324-1508 LTye@spokanecounty.org</p>
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Thanks for attending! Please evaluate the training!

Upcoming **iLinc** training

Quality Improvement at the Program Level

September 21, 2011, from 10 AM to Noon

Here's our Web site: [Public Health Performance Management Centers for Excellence](#)

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