Scheduling Using Process Metrics

Scheduling Tasks at Yale Animal Resources Center

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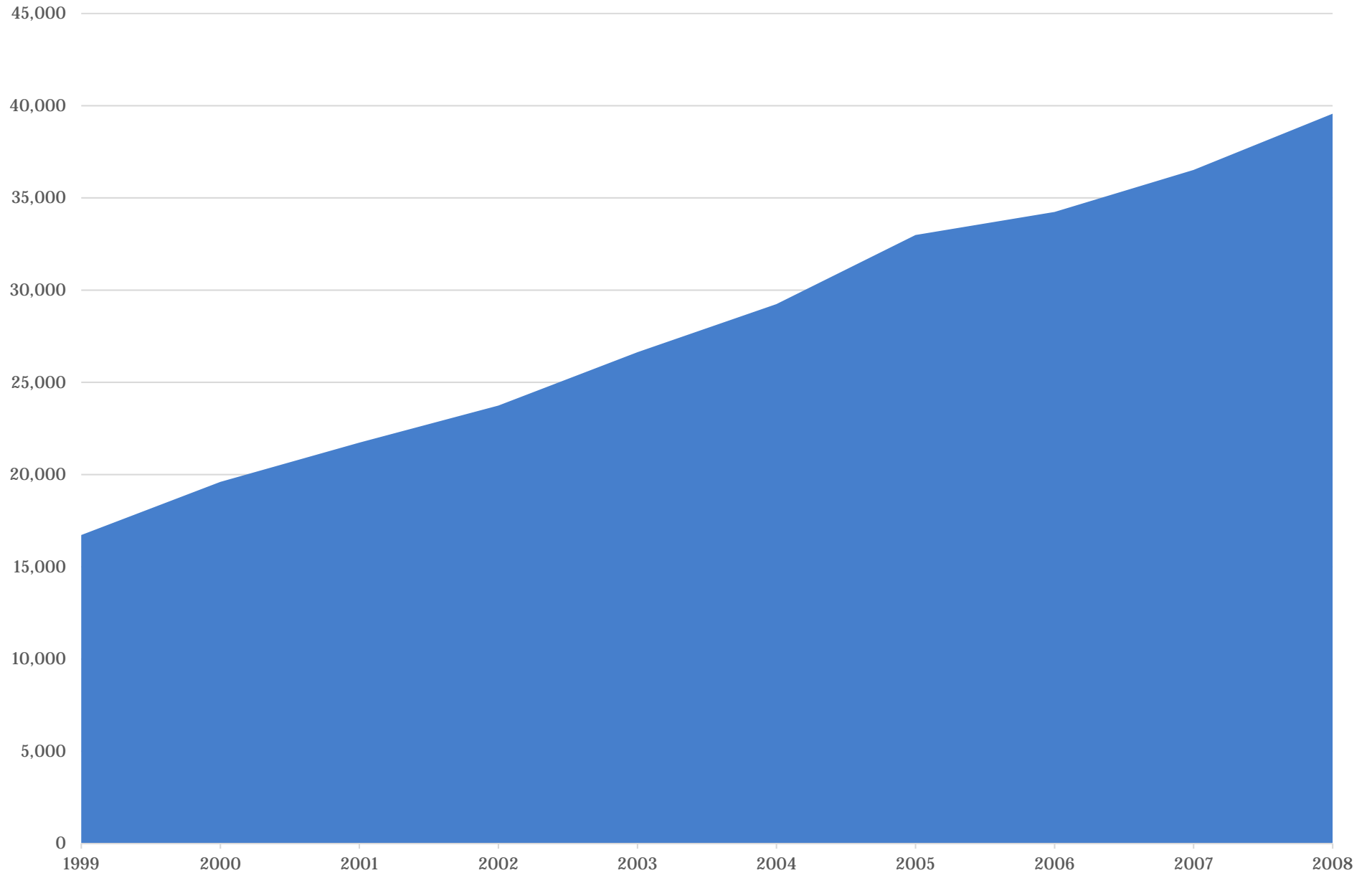*Yale Animal Resources Center*

Yale SCHOOL OF MEDICINE

The History - Scheduling at YARC

- Before 2008 – technicians were assigned rooms to care for
  - They decided when tasks were completed
  - No one else knew when work should be done
  - Covering for absenteeism was nearly impossible
- Why did we need to change?
  - Our old system became unsustainable due to growth of our program
  - We needed an equitable and efficient system
  - We were horribly understaffed
  - We wanted data to make better decisions
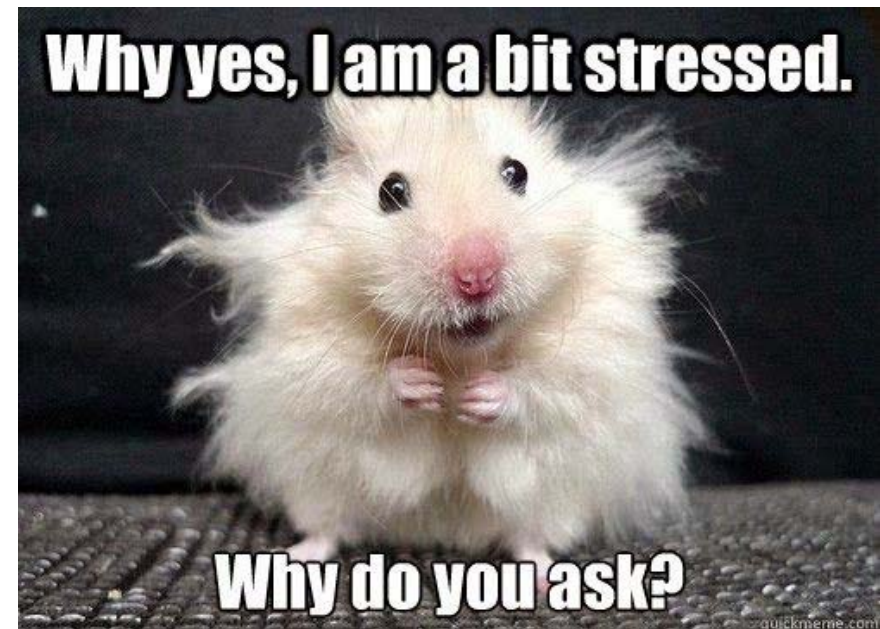
Factors Motivating the Need to Change

- Our previous method of scheduling became inadequate with our tremendous growth...

Cage Census

Factors Motivating the Need to Change

- **Unfair scheduling**
- **Managers weren't fully aware what tasks were completed each day**
- **Work wasn't rescheduled appropriately when PTO occurred**

Understanding the Work

- Team of managers and technicians was formed to find a better way to schedule the work

- Decided to gather process times on all activities for every technician for a month

- Hired people to do the data entry and a statistician

- Information was analyzed, grouped and averaged

The Outcome

- Resulting data is the basis for our Process Metrics Schedule

- Average time to complete each task:
  – Checking or changing cages
  – Spot change cages
  – Writing up sick animals
  – Weaning
  – Room maintenance times
  – Special assigned tasks

The New Schedules

- All tasks are scheduled and assigned each day

- All schedules are equitable – they are based on 450 minutes (7.5 hours)

- Assignments are scheduled and followed even when there is PTO

Next, how to apply our newfound knowledge…

The New Schedules

- Worked with Yale ITS to develop a "program" to help us manage the schedules
  - Macro-driven Excel files
  - New "scheduler" position
- Changed other processes to meet the needs of the new schedules
  - Data collection on daily room logs

Room: **XX**		Animal Holding													
		Week 1							**Week 2**						
Rack #	Count	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Rk # 1	159	✓	▲	✓	✓	✓	✓	✓	✓	Wb	✓	✓	✓	✓	✓
Cages - Bottles	141	16	89	16	16	16	16	16	16	14	16	16	16	16	16
Bottles	18		14							6					
Rk # 2	156	✓	Wb	✓	✓	✓	✓	✓	✓	▲	✓	✓	✓	✓	✓
Cages - Bottles	146	16	15	16	16	16	16	16	16	92	16	16	16	16	16
Bottles	10		4							8					
Rk # 3	147	✓	✓	✓	✓	✓	▲	✓	✓	✓	✓	✓	✓	Wb	✓
Cages - Bottles	130	15	15	15	15	15	82	15	15	15	15	15	15	13	15
Bottles	17						13							6	
Rk # 4	138	✓	✓	✓	✓	✓	Wb	✓	✓	✓	✓	✓	✓	▲	✓
Cages - Bottles	122	14	14	14	14	14	12	14	14	14	14	14	14	77	14
Bottles	16						6							12	
Rk # 5	155	✓	✓	✓	Wb	✓	✓	✓	✓	✓	✓	▲	✓	✓	✓
Cages - Bottles	153	2	2	2	1	2	2	2	2	2	2	8	2	2	2
Bottles	2				1							2			
Rk # 6	153	✓	✓	▲	✓	✓	✓	✓	✓	✓	Wb	✓	✓	✓	✓
Cages - Bottles	150	16	16	94	16	16	16	16	16	16	15	16	16	16	16
Bottles	3			2							1				
Rk # 7	72	✓	✓	✓	▲	✓	✓	✓	✓	✓	✓	Wb	✓	✓	✓
Cages - Bottles	66	7	7	7	42	7	7	7	7	7	7	7	7	7	7
Bottles	6				5							2			
Rk # 8	65	✓	✓	✓	✓	Wb	✓	✓	✓	✓	✓	✓	▲	✓	✓
Cages - Bottles	51	7	7	7	7	5	7	7	7	7	7	7	32	7	7
Bottles	14					5							11		

Task		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Area Leader Room Check														AI 35	
Euthanasia	11.7		8	8	8	8	8			8	8	8	8	8	
Housing Animals															
Sick or Dead Animals	0.76	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Special Water															
Spot Change Bottles		1	1	1	1	1	1	1	1	1	1	1	1	1	1
Spot Change Cages	1.64	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Targeted Sentinels															
Top Off Food	11.1	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Wean or Separate	0.57	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weigh Cages															
Food DSP							45								
Vent Rack Filter Change	5					16							16		
Water Bottle Prep	2		4	4	4	4	4			4	4	4	4	4	
Equipment Prep		5	10	5	7	5	10	5	5	10	5	10	5	10	5
Soiled Equip Prep		2	8	2	8	2	8	2	2	8	2	8	2	8	2
Sanitation/Record Keeping		8	17	17	17	17	17	8	8	17	17	17	17	17	8
Room Total		**124**	**244**	**226**	**192**	**164**	**284**	**124**	**124**	**244**	**145**	**165**	**197**	**270**	**124**

Jane Doe ROOM #	CHANGE RACKS	CHECK BOTTLES	RACKS	ROOM TASKS	EST. TIME 442
2023		Rack 5	Rack 1, 2, 3, 4, 6	Equipment Prep, Euthanasia, Room Sanitation/Record Keeping, Sick or Dead Animals, Soiled Equip Prep, Spot Change Bottles, Spot Change Cages, Top Off Food, Water Bottle Prep, Wean or Separate	118
2024	Rack 3	Rack 5	Rack 1, 2, 4, 6	Equipment Prep, Euthanasia, Room Sanitation/Record Keeping, Sick or Dead Animals, Soiled Equip Prep, Spot Change Bottles, Spot Change Cages, Top Off Food, Water Bottle Prep, Wean or Separate	166
2032				Room Sanitation/Record Keeping	8
2038	Rack 1			Equipment Prep, Euthanasia, Room Sanitation/Record Keeping, Sick or Dead Animals, Soiled Equip Prep, Spot Change Bottles, Spot Change Cages, Top Off Food, Water Bottle Prep	35
2042				Room Sanitation/Record Keeping	3
2046				Room Sanitation/Record Keeping	8
DAILY TASKS					
2032 Decon Hood					25
Break					30
Change Scrubs					20
E-mail Time					15
Emergency/Incidental					15

Results – The Less Good

- Some staff were unhappy about losing flexibility to choose when to complete tasks
  - This has disappeared after time
- More time is taken to generate schedules
  - Ie. It's now a full time job for 4 staff members!

Results - Positives

- Schedules are adhered to
- Staff schedules are equitable
- Staff can take time off and not worry about being overloaded on their return
- Managers understand the work occurring daily in their facilities
- Data is available
  - We've used it for many purposes!

Moving Forward

- Developed better ways of collecting data
- Change process metrics times as procedures change or as we add new species
- Developed a process to introduce new or changed process metrics times
- Still trying to find an actual program to meet our scheduling needs!

VOEN Analytics Conference
Impact Summary

Title: Scheduling the Work at Yale

Problem and analysis method: Scheduling needed to be modernized; staff self-timed themselves and data was analyzed to develop Process Metrics Schedules

Summary: Staff schedules have been changed to be based on the average time to complete each task scheduled.

Impact of the analytics study

Decisions made: Implement new scheduling system based on time to complete tasks

Calculated or actual changes

Animal Welfare Knowing that all cages are checked daily and changed per our defined timeline!

Resource use Data entry staff, statistician, ITS for developing a usable Excel file, new staff tasked with scheduling

Cost avoidance Not receiving citations from USDA or AAALAC for poor care