Integrating Free Tech to Improve Vivarium Efficiency

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Tools of the Trade

Google Suite

Microsoft Office

Slack

Problem 1A

Tracking Requests and Submissions

Surgical Requests

QUESTIONS RESPONSES 246

OVR Operating/ Procedure Room

Please use this to schedule all surgeries, prep room activities or OR activities (which would include cleaning chambers in awake monkeys in O.R.). Please include the following information.

This form is automatically collecting email addresses for New York University users. Change settings

Procedure Date and start time

Procedures include non-surgical uses of OR or procedure room. If a surgery is intended, please complete only section entitled Surgical Date and Start Time.

Month, day, year

Time

Is above procedure repeated on regular basis? If Yes provide time and day of week will repeat

Short answer text

Surgical date and start time

Start time is anticipated start of surgery, not time of anesthetic induction. Please note this cannot be earlier than 8 am without clearance from OVR staff as one hour is allotted to prepare animal for surgery. (i.e. if indicate above want to start Surgery at 8 am, OVR will start sedation and anesthetic induction at approximately 7 am).

Month, day, year

Time

Room location *

- Prep room
- Operating room
- Prep room prior to MRI
- Prep room prior to 2-P imaging
- Other...

Procedure description *

Brief description of anticipated procedures i.e. dural thinning, chamber placement, MRI, 2-P imaging

Long answer text

Animal name and/or USDA number *

Short answer text

UAWC Protocol *

Short answer text

Anticipated duration of procedure *

Duration

Solution 1A

Procedure Request Form

Timestamp	Email Address	Procedure Date and start time	Surgical date and start time	Room location	Animal name and/or USD	UAWC Protocol	Procedure description
2/12/2016 16:35:54	[redacted]	2/24/2016 8:00:00		Operating room	[redacted]	[redacted]	Dura Thinning in existing chamber
2/15/2016 13:32:25		2/16/2016 14:00:00		Prep room			This is a short procedure for cresting a burr hole
2/26/2016 15:24:27		3/10/2016 8:00:00		Prep room prior to MRI			Post-Surgical anatomical MRI [redacted]
3/8/2016 8:48:43		1/2/2016 2:02:00		Operating room			testing testing one two three
3/9/2016 16:52:07		3/15/2016 8:00:00		Prep room prior to MRI			MRI
3/9/2016 17:15:32		3/14/2016 8:00:00		Prep room			mask fitting

Anticipated duration of procedure	Maintenance anesthesia requirements	Special requests
5:00:00	Isoflurane	Kopf Stereotax
0:15:00	Sedation	
2:00:00	Isoflurane	
15:18:16	Sufentanil/ atracurium CRI	
4:00:00	Isoflurane	We will use Ablavar at the end to map vasculature.
1:00:00	Sedation	animal must be in situ in the testing chair.

Outcome 1A

Better tracking

1. Complete procedure information communicated
2. Data mining of historical procedures

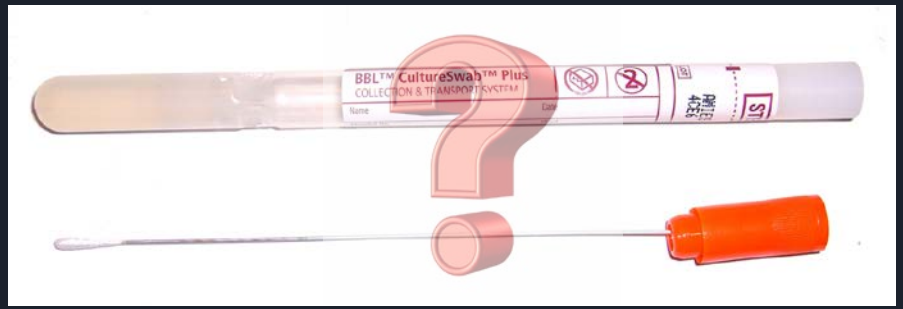
→

1. Improve staffing and equipment plans
2. More efficient procedure planning

Problem 1B

Tracking Requests and Submissions

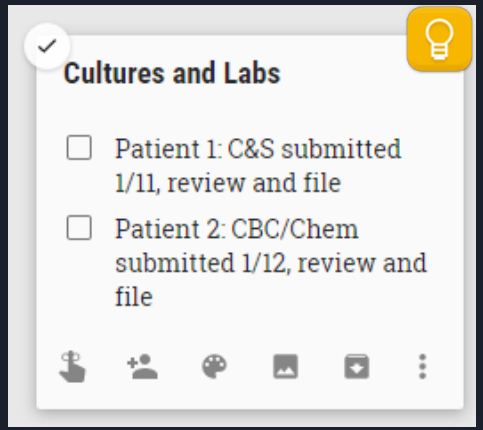
Sample submissions by labs (cultures)



Solution 1B

OVR Form Submissions

- Vets can track submissions
- Results returned in a timely manner
- Samples sent out consistently
- Full information about sample acquired



Animal ID	Sample collection site.	Non human primate M. m	How many sampl	Test Requested	Are all tubes labelled with Name, USDA	Date shipped	Study ID
[redacted]	PPC	M. mulatta (rhesus)		Bacterial culture and sensitivity	Yes	10/27/16	[redacted]
	Right Chamber	M. nemestrina (Pigtail)		Culture	Yes	10/31/06	
		M. fascicularis (Cyno)		c&s	Yes	11/3/16	
	PPC Chamber	M. mulatta (rhesus)		Bacterial culture	Yes	11/4/16	
	Right chamber	M. mulatta (rhesus)		C&s	Yes	11/8/16	
	Left Chamber	M. mulatta (rhesus)		Culture	Yes	11/8/16	
	Right Chamber	M. nemestrina (Pigtail)		Culture	Yes	11/10/16	

Outcome 1B

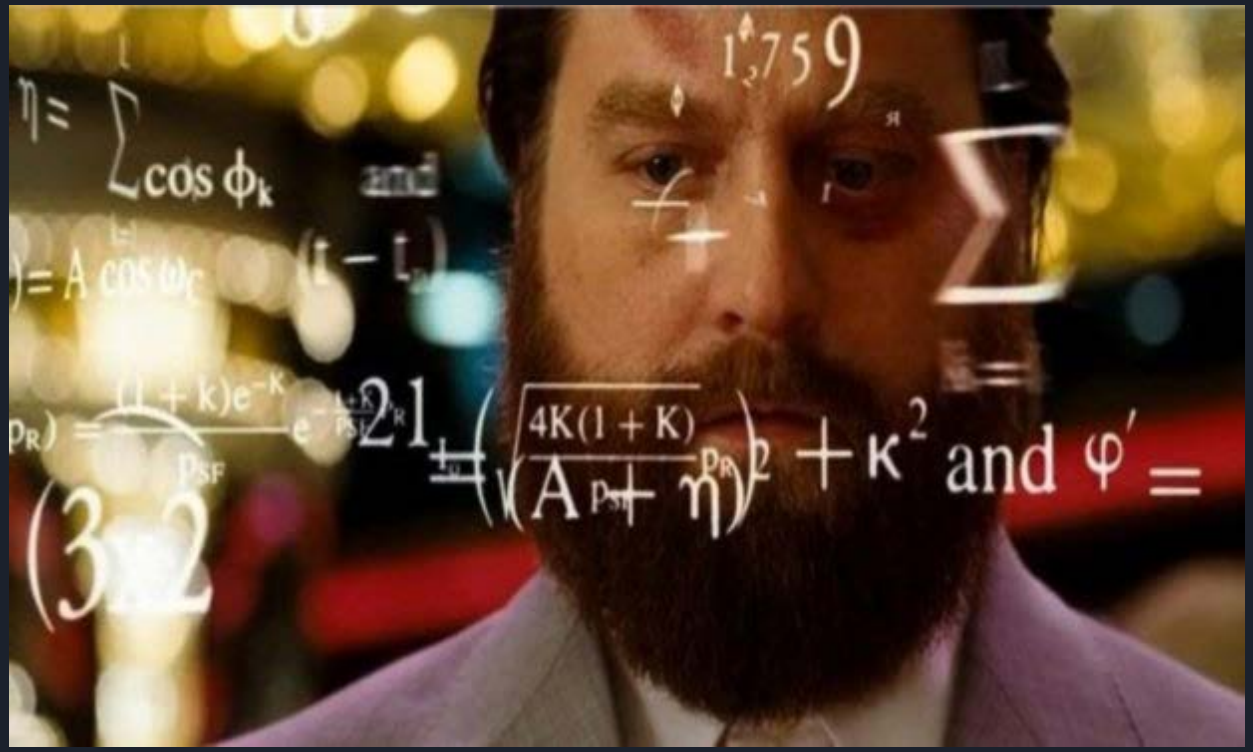
Better tracking

1. Better tracking of culture submissions
2. Less sample loss or late submission

1. Timely action on results, improved vet collaboration
2. Greater result accuracy

Problem 2

Inaccurate Animal Numbers on IACUC Submissions



Solution 2

Breeding Numbers Spreadsheet

- Excel to the rescue
  - Back calculate required offspring numbers
- Included variables
  - Up to three genes of interest
  - Single sex experiments
  - Homozygous lethal
  - Additional percentage for loss
  - Independently assorting autosomal genes

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Outcome 2

A tool to check your math

1. Labs still do their own calculations
2. Use the spreadsheet to validate
3. Removes some human error component
4. Helpful for writing a long breeding protocol!

Problem 3

Too much email!

OVR sends listserv emails about:

- Facilities issues
- Veterinary cases
- Behavioral observations
- Colony updates
- Procedures

Everybody gets everything.

Solution 3

Slack for Ongoing Communications

- Chat-based communication tool
- Users added to channels
- Search, tag, attachment-friendly
- Proposed Use: non-urgent communication

OVR
colleen.thurman

All Threads

Channels
[redacted]
enrichment
general
[redacted]
random
vets

Direct Messages
slackbot
colleen.thurman (you)
[redacted]

#enrichment

7 | 0 | Add a topic

+ Add an app Invite others to this channel

Search

October 18th, 2016

colleen.thurman 5:20 PM
joined #enrichment.

colleen.thurman 5:20 PM
set the channel purpose: updates on enrichment

October 19th, 2016

[redacted] 11:38 AM
joined #enrichment along with [redacted]

[redacted] 12:26 PM

[redacted] 12:26 PM
joined #enrichment by invitation from [redacted]

[redacted] 12:29 PM

[redacted] 12:29 PM
joined #enrichment by invitation from [redacted]

[redacted] 12:29 PM

[redacted] 12:29 PM
joined #enrichment by invitation from [redacted]

[redacted] 12:29 PM

[redacted] 12:29 PM
joined #enrichment by invitation from [redacted]

Message #enrichment

About #enrichment

Channel Details

Highlights

Pinned Items

7 Members

colleen.thurman (you)
[redacted]

Invite more people ...

Shared Files

There are no files to see here right now! But there could be – drag and drop any file into the message pane to add it to this conversation.

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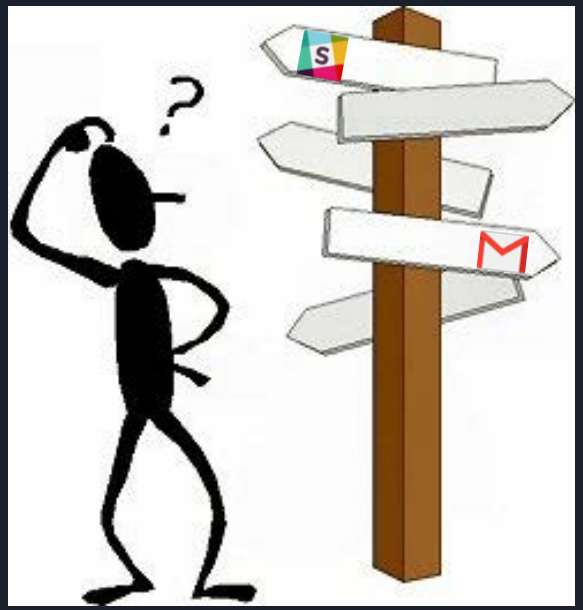
Problem 3.1

Adoption

- Switching to Slack was difficult!
- Labs already using
- Vet staff had difficulty deciding what merited email vs Slack
- Unreliable Wi-Fi in vivarium
- Reverted to email ☹️



What did we learn?

Questions?

Acknowledgements

- Gordon Roble
- Kaitie Holmann
- NYU OVR staff
- NYU lab staff

Citations

https://law-sspc.com/wp-content/uploads/2017/05/Study-Finds-That-Social-Security-Workers-Often-Provide-Incomplete-Information.jpg
http://doctorv.ca/wp-content/uploads/2013/03/swab.jpg
https://cdn.pixabay.com/photo/2015/04/04/19/22/question-mark-706906_960_720.jpg
http://www.mememaker.me/images/created/826504906965419.jpg https://c1.staticflickr.com/7/6136/5990183098_a1208d9d5d_b.jpg

VOEN Analytics Conference 2018

Impact Summary

Title: Integrating Free Tech to Improve Vivarium Communication

Problem and analysis method: 1) Incomplete Communication of Sample Submissions and Surgical Plans 2) Inaccurate Animal Number Calculations in IACUC Protocols 3) Inefficient Communication Modality between Vivarium and Lab Staff all observed.

Summary: Changes have provided tools for better tracking and planning.

Impact of the analytics study

Decisions made/Actions Taken: 1) Form submissions implemented for surgery and samples 2) Breeding protocol animal number calculator provided 3) Chat-based tool tested as a form of streamlining communication among staff

Calculated or actual Improvements:

Animal Welfare *Improved procedure planning, sample handling*

Resource use *Fewer revision hours for breeding protocols, decreased use of sampling supplies and fewer submissions due to improved result accuracy, fewer veterinary hours for surgical planning*

Cost avoidance Not calculated