

# IDEAS

OCCUPATION

AGE

## METADATA

ID

STATUS

sick  
exposed but well

HOSPITAL

WARD

A

B

G<sub>1</sub>

F

E

D

C

FECES  
EXPOSURESEX  
EXPOSUREDROPLET  
EXPOSURESHARED MEAL  
EXPOSUREHOUSEHOLD  
EXPOSURE

## TIMING

DATE OF EXPOSURE START

2017-09-21

DATE OF EXPOSURE END

exposure

INCUBATION

7 Days

DATE OF ONSET

NA

2017-10-22

→ distribution of exposure?

other given data:

- map of hospital wards
- phylogenetic tree of IDs

# FILTER

↳ relevance of metadata

- ID
- STATUS
- AGE → vulnerability?
- OCCUPATION → transmitters?
- HOSPITAL WARD

↳ phylogenetic tree has no branch lengths → cladogram

↳ status "exposed but well" has no "date of onset"

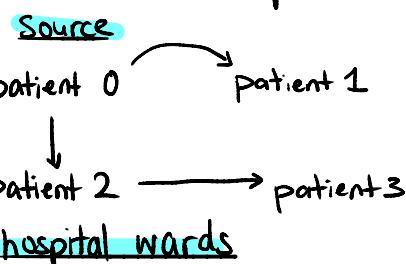
↳ "incubation" is hard to fit with exposure dates/onset date

↳ some patients have more than one mode of exposure

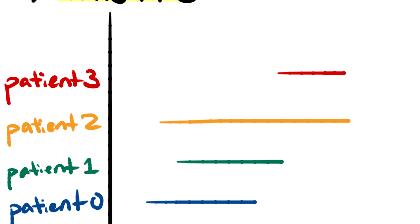
↳ map of hospital wards shows six wards but only 4 wards are present in the dataset (A, B, C, D)

# CATEGORIZE

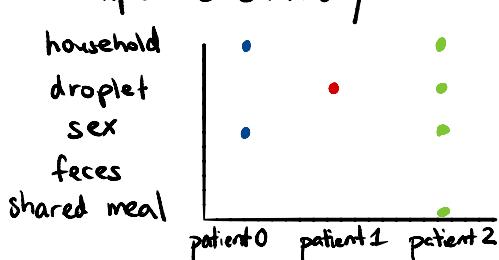
↳ transmission maps



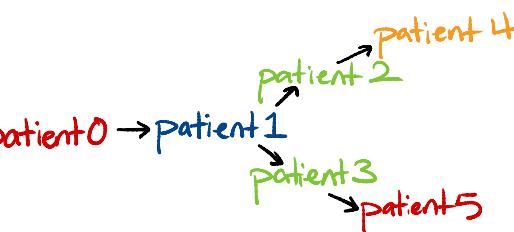
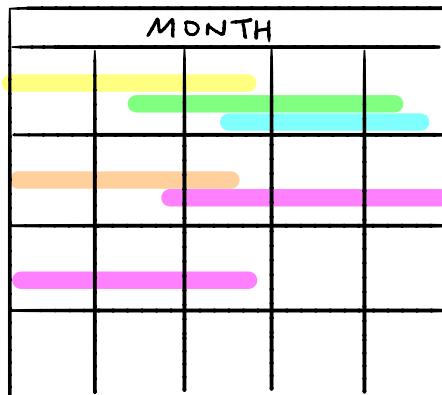
↳ timelines



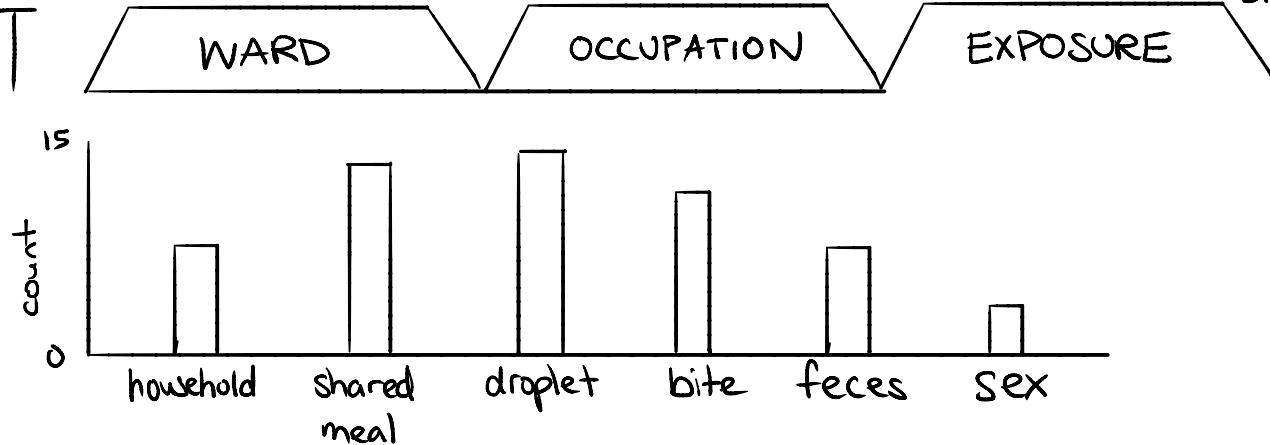
↳ exposure summary



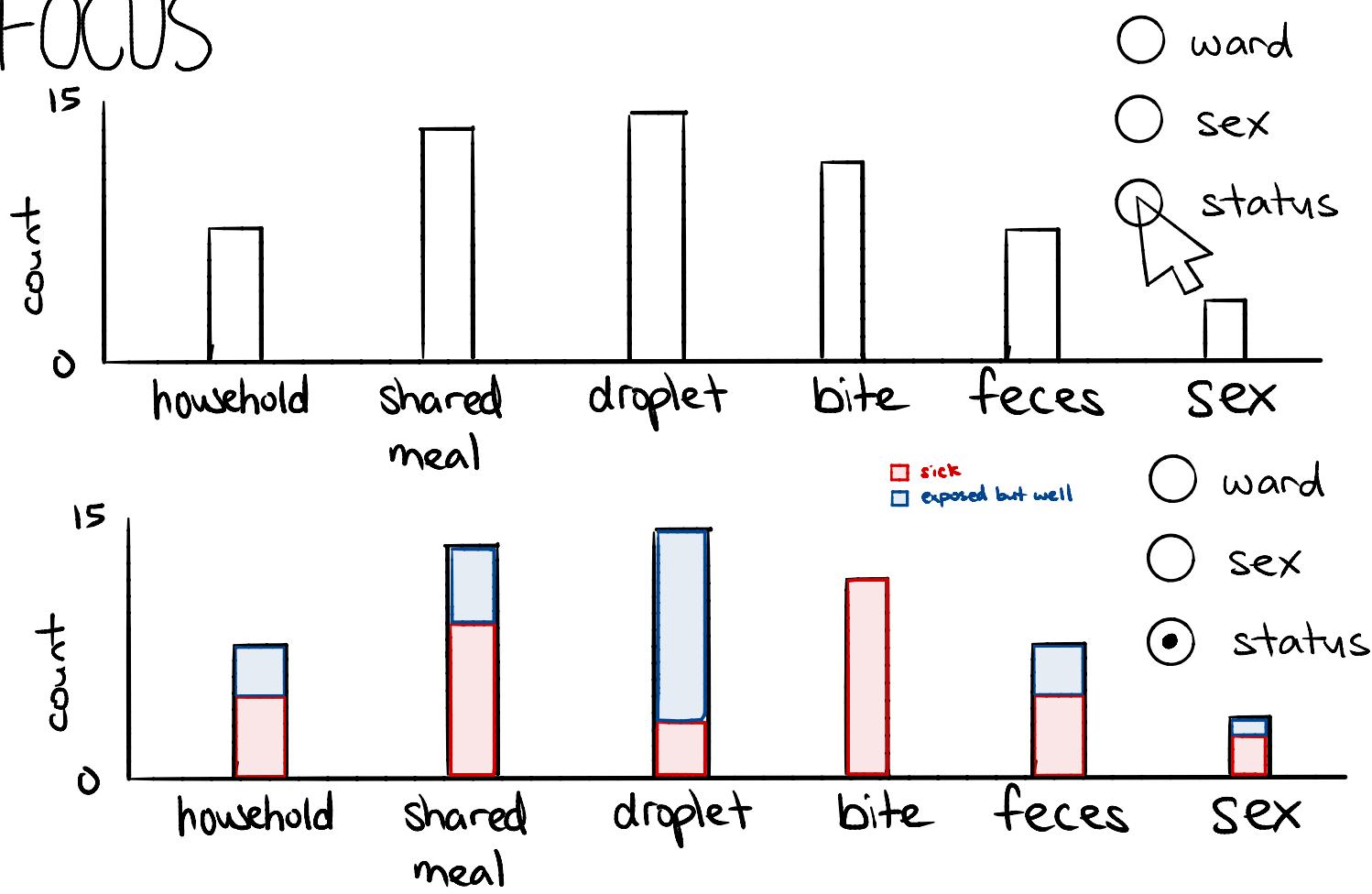
# COMBINE & REFINED



# LAYOUT



# FOCUS



# OPERATIONS

- each tab corresponds to a categorical attribute
- under each tab, another categorical attribute can be chosen by click
- there will be a more specific breakdown

# DISCUSSION

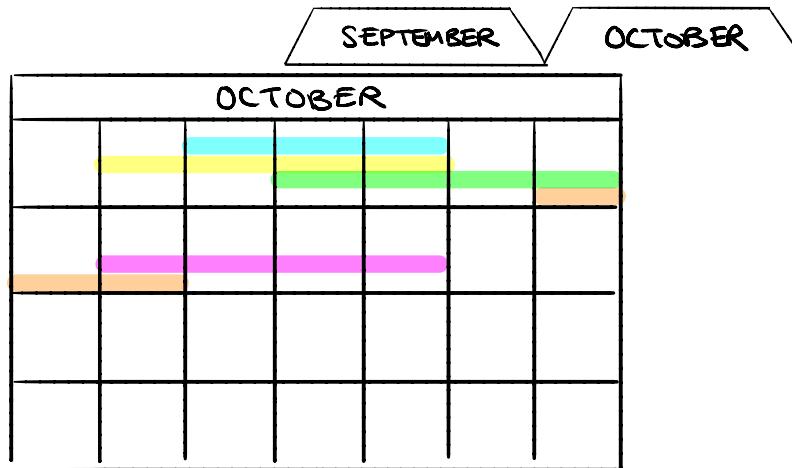
## Advantages:

- overview of counts for each attribute, with further breakdown
- see most common/rare values for each attribute

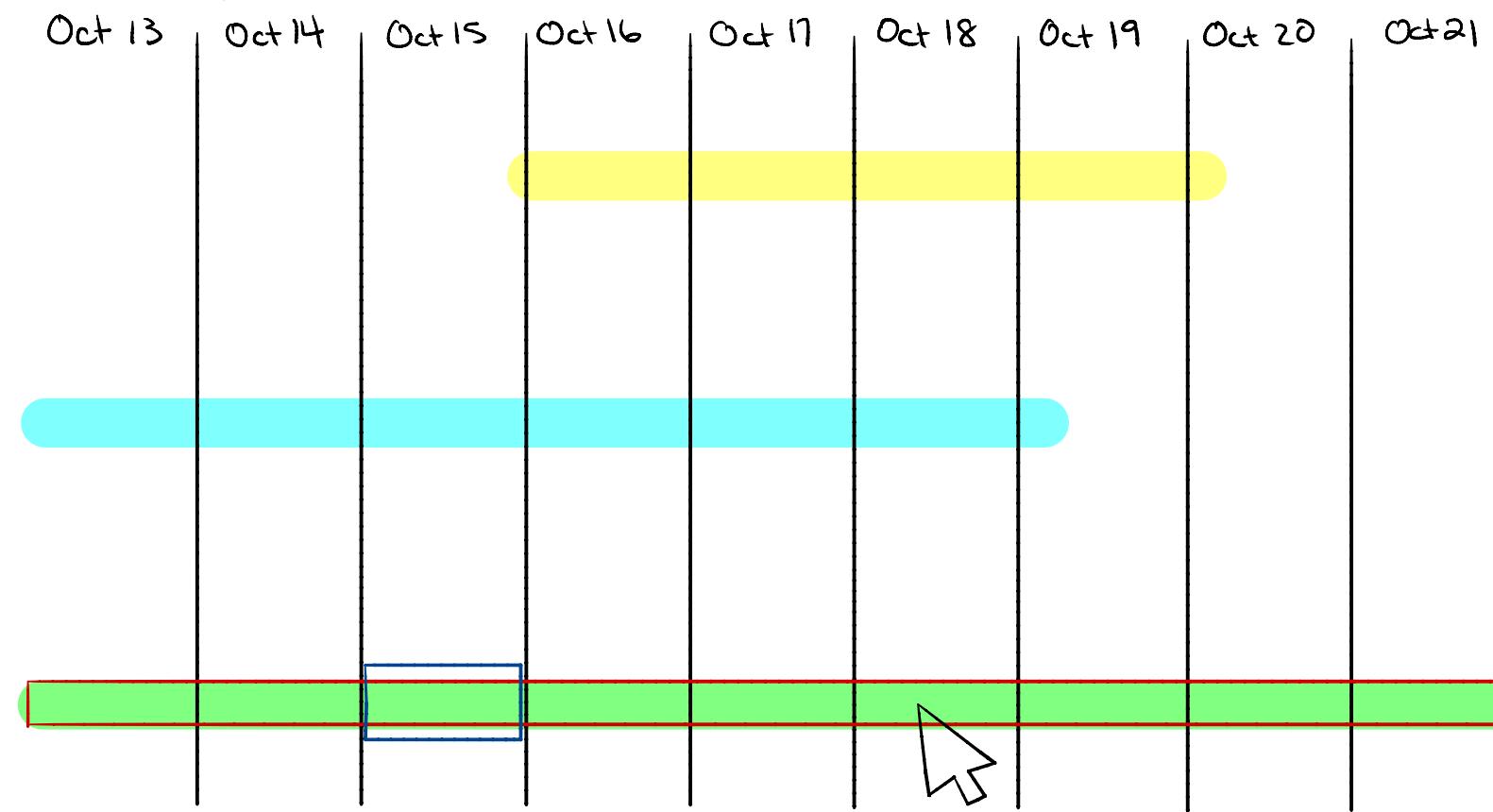
## Disadvantages:

- cannot see all tabs at once (can't facet since x-axis differs)

# LAYOUT



# FOCUS



# OPERATIONS

- clicking on each exposure duration will highlight the incubation period in the red box if applicable
- clicking again will highlight the date of onset in the blue box if applicable

# DISCUSSION

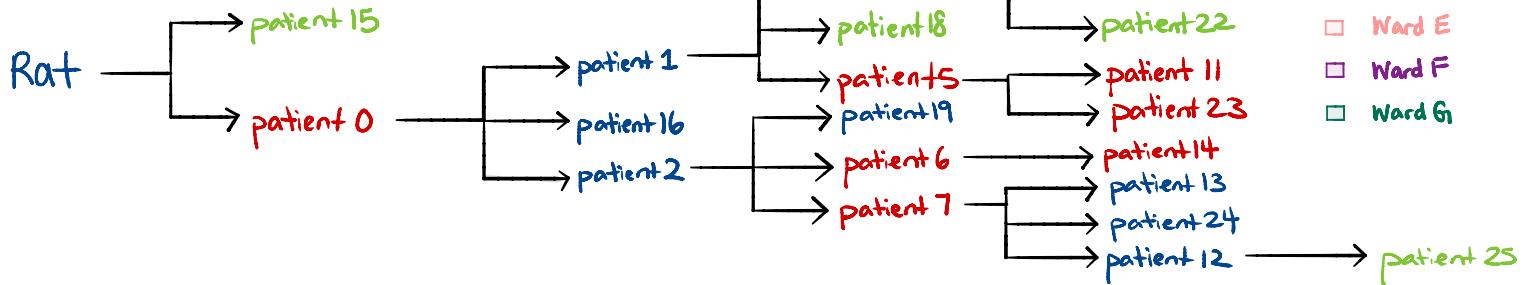
## Advantages:

- clear visualization of the dates and any overlapping dates
- duration shows exposure and boxes indicate incubation and onset

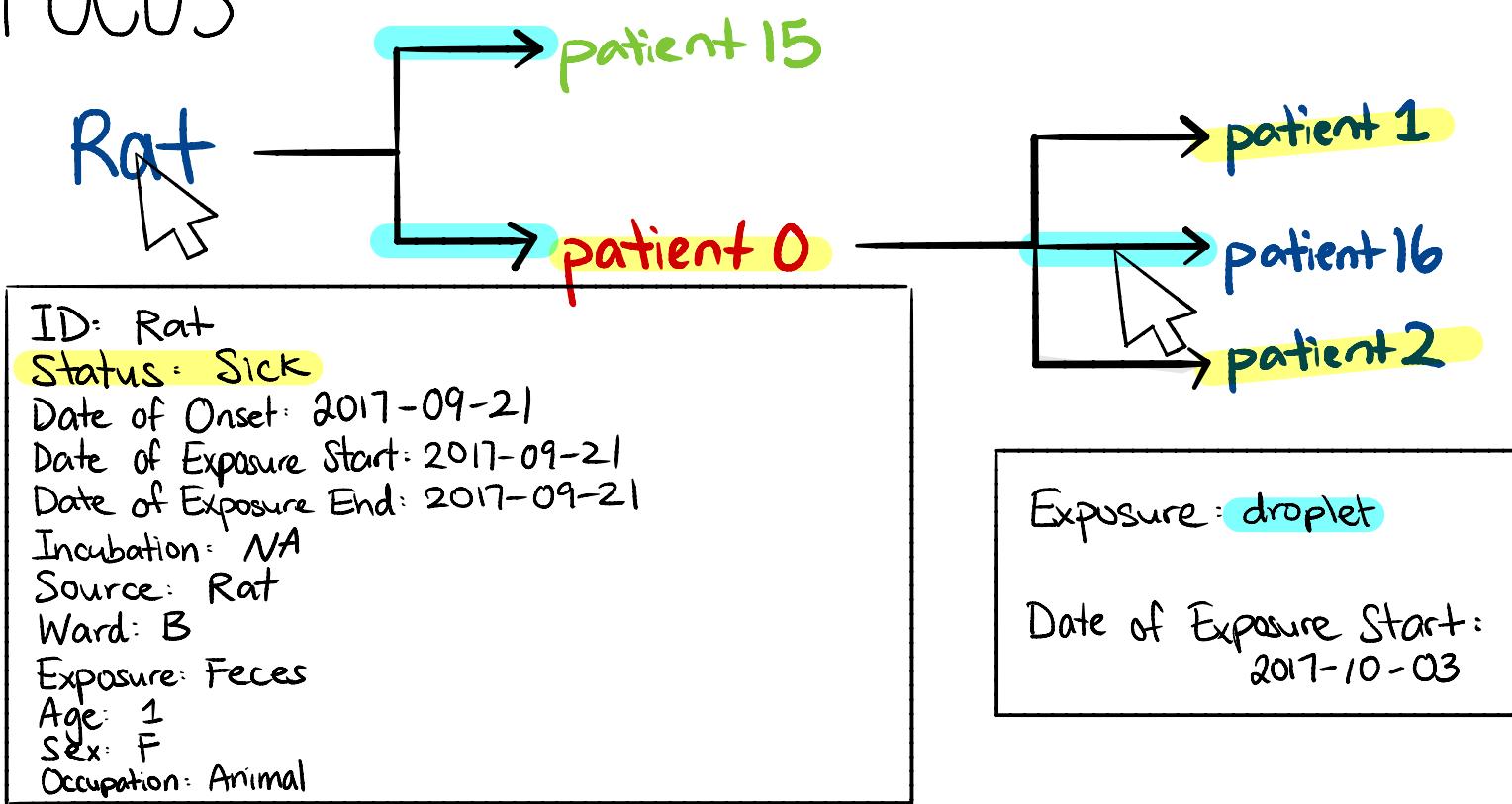
## Disadvantages:

- shows all patients at once, no filtering by other attributes

# LAYOUT



# FOCUS



# OPERATIONS

- hovering over each "arrow" of the transmission map reveals the mode of transmission/exposure
- hovering over each "tip" of the transmission map reveals all the metadata for that patient ID
- selecting an attribute from the pop-up window will highlight other "tips" with that same value for that attribute

# DISCUSSION

## Advantages:

- can see the ward-to-ward transmission at a glance
- only "relevant" metadata is shown unless hovering

## Disadvantages:

- cannot see all exposure at once for whole map or just one mode

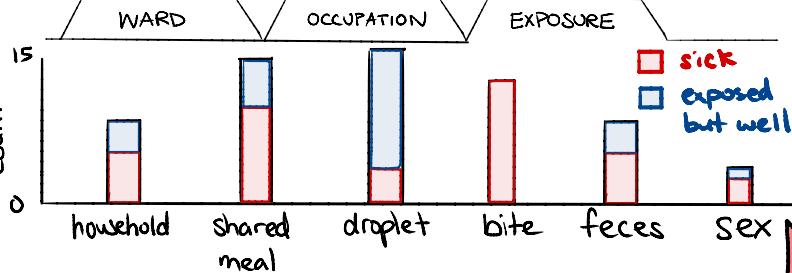
# LAYOUT

# OPERATIONS

## DATA

## BREAKDOWN

## EXPOS



BREAKDOWN		
Ward	Sex	Status
○	○	●
○	○	○
○	○	○
⋮	⋮	⋮

### DATA BREAKDOWN:

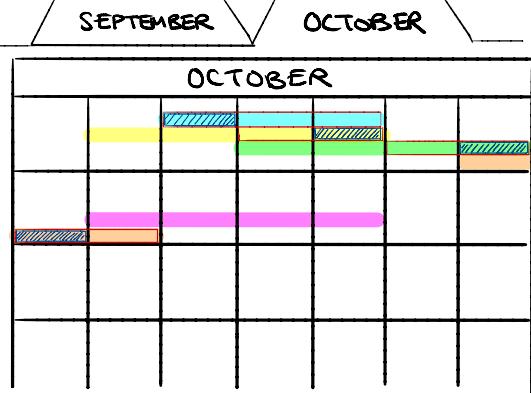
- there are sub tabs for each attribute
- under each subtab you can breakdown into one other attribute

### EXPOSURE DURATIONS:

- subtabs are months in "calendar view"
- you can select multiple patients to view at once, and show incubation period or date of onset if applicable

## OWN EXPOSURE DURATIONS

## TRAN



## Patients

- patient 0
- patient 1
- patient 2
- patient 3
- patient 4
- patient 5
- patient 6
- patient 7
- patient 8
- patient 9
- patient 10
- patient 11
- patient 12
- patient 13
- patient 14
- patient 15
- patient 16
- patient 17
- patient 18
- patient 19
- patient 20
- patient 21
- patient 22
- patient 23
- patient 24
- patient 25

- incubation period
- date of onset

## DETAILS

### IMPLEMENTATION:

- an R shiny app dashboard with multiple tabs, allowing for user interaction
- html rendering so it can be viewed and interacted with in any browser
- each tab contains a different visualization aspect of the data
- subtabs under main tabs allow for visualization of individual attributes
- further breakdown of each subtab allows for simultaneous viewing of two attributes

### MAIN TABS:

- Since this will be a webpage, main tabs can also be refreshed and have all three visualizations on one page

### SUB TABS:

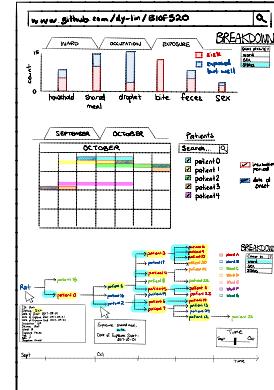
- Sub tabs can be converted to a dropdown menu if there are too many tabs (e.g. too many attributes)

### SINGLE SELECTION BOXES

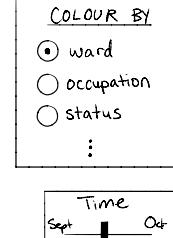
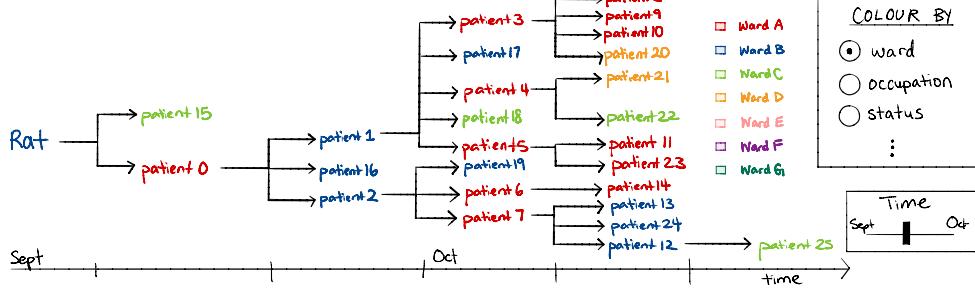
- Single selection boxes can be converted to a dropdown menu as well in the case of too many options/attributes

### MULTIPLE SELECTION CHECKBOXES

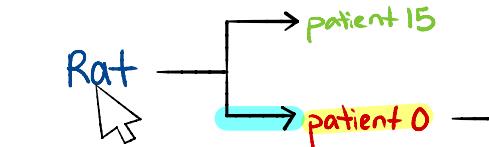
- a search bar will be added to search for options to select
- a "select all" checkbox will be added
- unselected attributes hidden in legend



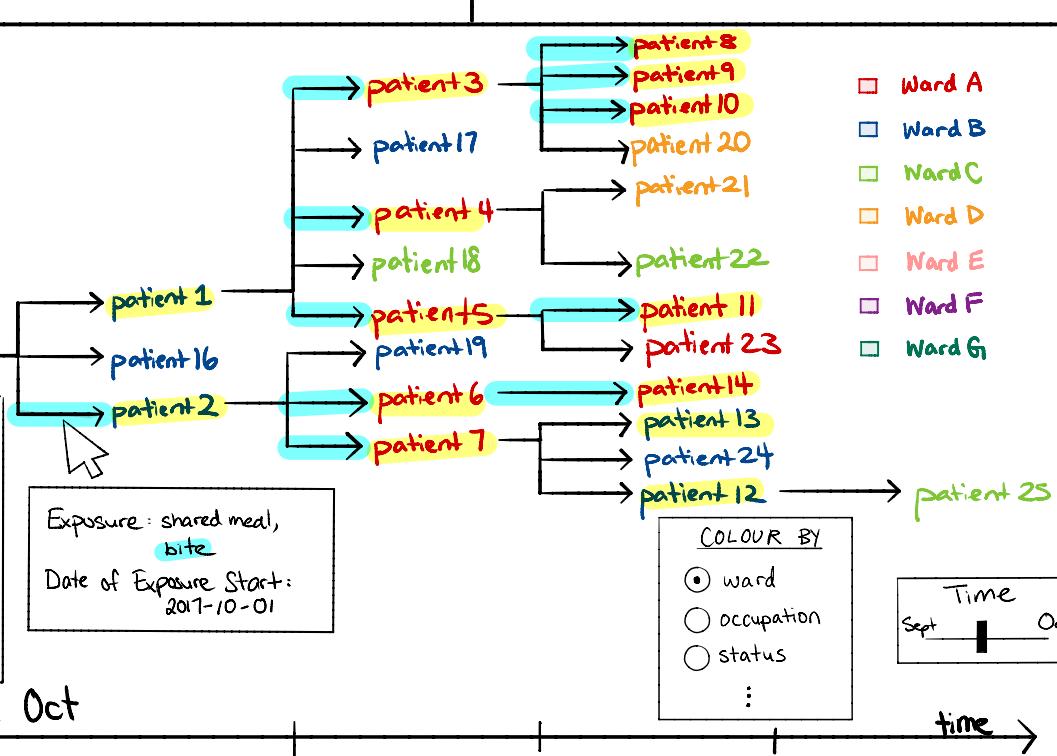
## URATIONS TRANSMISSION MAP



## FOCUS



ID: Rat  
Status: Sick  
Date of Onset: 2017-09-21  
Date of Exposure Start: 2017-09-21  
Date of Exposure End: 2017-09-21  
Incubation: NA  
Source: Rat  
Ward: B  
Exposure: Feces  
Age: 1  
Sex: F  
Occupation: Animal



- Ward A
- Ward B
- Ward C
- Ward D
- Ward E
- Ward F
- Ward G

