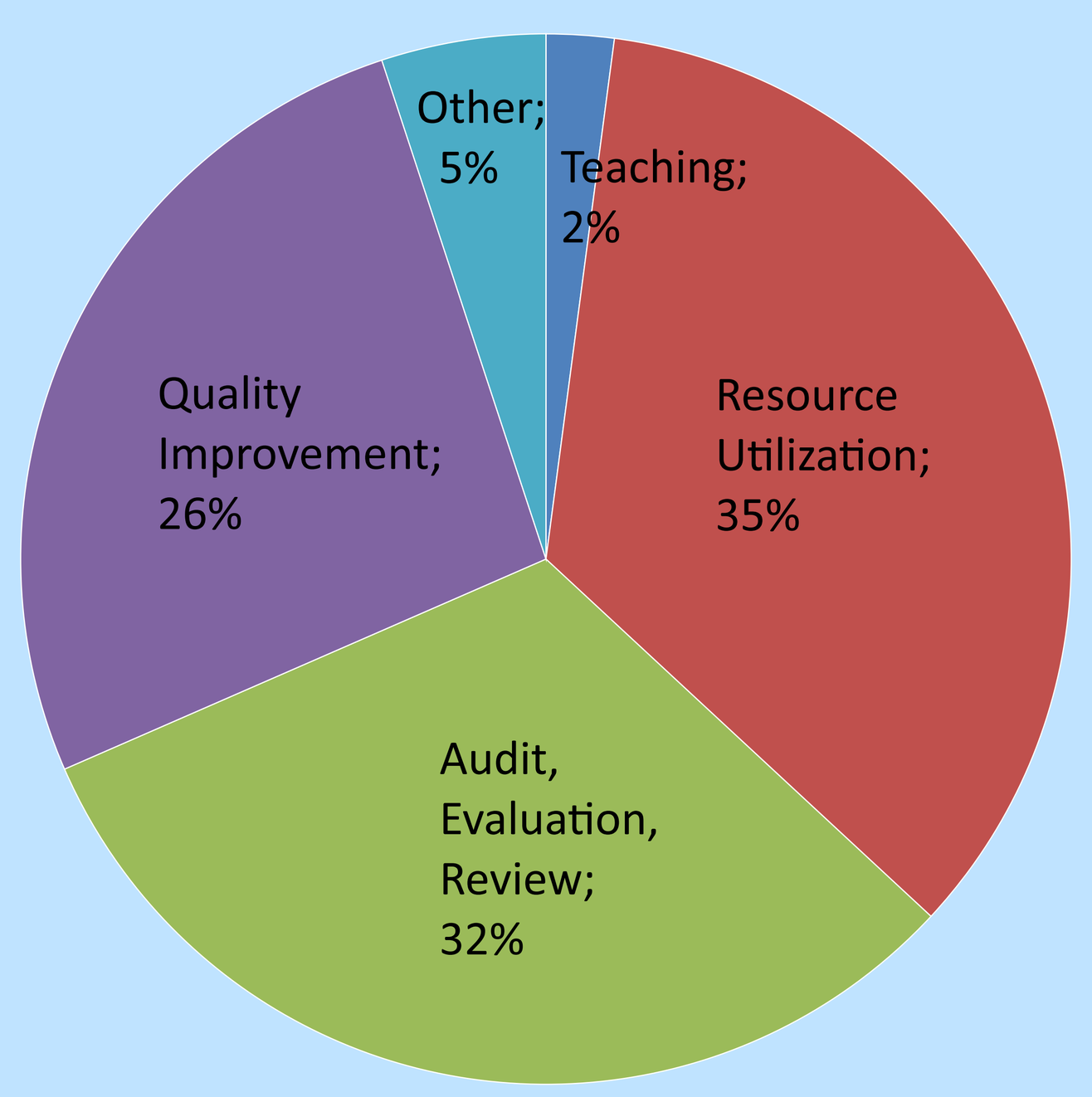
CC Database Requests by Nurses 2008 -2018 (N=336)



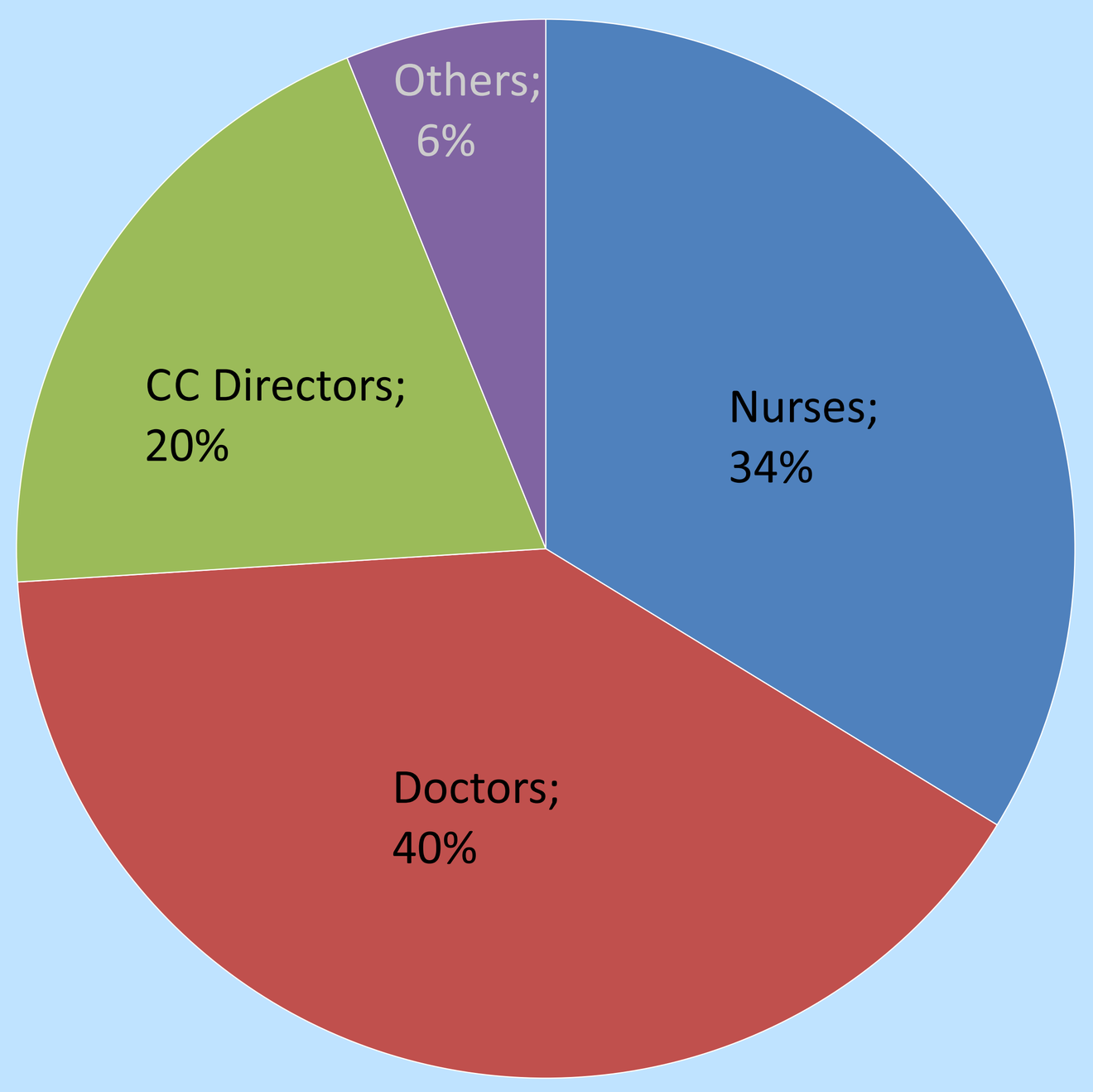
Nurses Use Data Too!

The Critical Care and Medicine Database contains information like interventions and procedures which directly involve nursing care and practice. Using these data can help establish evidence based nursing practices that will provide a safer environment for patients and improve patient outcomes.

How can nurses use the database?

- ✓ Determine current state to support potential study or inquiry
- ✓ Identify causes and relationships between specific elements of patient care and outcomes
- ✓ Evaluate the outcomes between the pre and post intervention related to quality improvement
- ✓ Compare the trends over time to explain any phenomenon of interest happening in the unit
- ✓ Chart audit or review of group of patients based on certain criteria
- ✓ Find a patient suitable as a case or example for teaching or instruction
- ✓ Include aggregate data in papers or presentations for educational training / courses

People Making Database Requests 2008 -2018 (N=996)



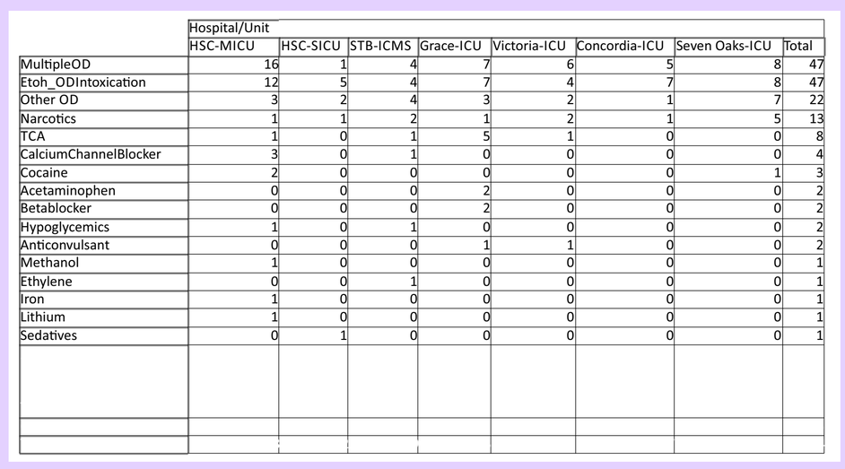
The following are examples of how our data could be used. The examples and results are fictional

Teaching

A – Finding a patient

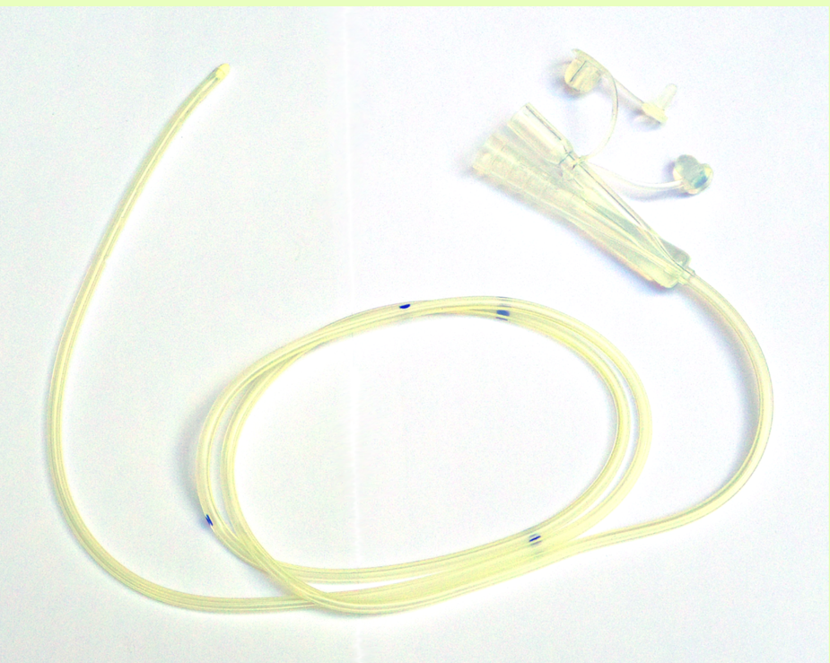
Lucy, a nurse in STB ICU needs a case for a presentation at the upcoming ICU conference. She remembers a patient in 2016 whose stay would be good teaching material. She wants to review the chart, but can't remember the chart number or patient name to request it. She knows about the Critical Care Database so she approaches the data collector at STB and asks for help. The data collector connects her to the statistician. All that Lucy remembers about the patient is that he was less than 26 years old, admitted in both ICMS and ICCS and had AV ECMO, and died. Julie searches the database using the criteria Lucy specified. It turns out that more than one patient meets the criteria that Lucy provided. Julie gives a list of patients who met the criteria and the list contains the patient's initials, Chart# and admit and discharge dates at STB ICCS and STB ICMS. Lucy requests the patients medical charts, and on review finds that one of the other patients on the list provides further information on the topic of her presentation. Lucy prepares her materials citing the patients cases with no mention who the patient were, and successfully does her presentation.

B – Understanding the incidence across patients



Rachel, a nurse educator, is currently revising the curriculum of the Regional Critical Care Nursing Education Program and would like to add information about caring for a patient with an overdose. She has no idea what type of overdoses have been cared for in the regional ICUs. She heard about the Critical Care Database from colleague and got the name of Julie, the Database Statistician. She emails Julie, introduces herself and tells about her need regarding patients with overdoses. Julie replies to her that this information is being collected in the database and can be shared with her. Rachel fills out the electronic Database request form Julie emailed her. Rachel specifies that she needs all patients with an overdose for a one year period from all ICUs and the type of overdoses these patients have. Julie provides her a two-way table with the types of overdoses in the rows and all the ICUs in the columns and the counts of patients in each cell and the totals at the bottom row and at the last column. Julie also provides her with a list of chart numbers for patients for which the database only recorded that they had an "Other overdose", allowing Rachel to review the charts for details on rare cases. Rachel is able to add the different types of overdoses being admitted in ICU and focuses on the patient care on these types of overdoses in the course.

Supporting a Hypothesis - Delayed Tube Feeds



Community ICU nurse Frank has observed that the start of tube feeding for intubated patients is often delayed. The problem he observes is not a matter of neglect but of competing priorities. Sometimes there is uncertainty about whether further invasive tests might require the patient to have an empty stomach. At other times there is hope that the patient will be extubated soon, so tube feeding won't be required.
Frank is worried that the delays in starting to feed intubated patients are harming them.
Some colleagues tell Frank that the Critical Care and Medicine Database might be able to help him find out if his observations are actually having a negative impact on patient outcomes. Frank calls Trish, the manager of the database and Julie, has a conversation to find out if there is data in the database that might shed more light on the question.
In the following discussion it is determined that we have data on our TISS form for both, days with tube feeding and days while intubated. We would have data to tell which patients arrived malnourished, and on how long the patient stayed in our unit, and if they were discharged in the hospital from a medicine ward, how long they were in hospital altogether.
Frank and Julie decide that they will extract the following information from the database:
* past five years or more (if size in not sufficient)
* average delay between start of intubation and start of tube feeding in days
* frequencies based on delays group (i. e. 0, 1-2d. 2-4d, etc.) and patients category who arrived malnourished and not malnourished. Perform Chi-Square test to determine if delays and arrived malnourished are independent to each other or not.
* disposition of patients on leaving ICU
* impact on ICU length-of-stay of delaying tube feed
This data should be able to tell Frank whether there are actually delays, or whether this might be just a perception. If a delay exists, the data should also show whether patients for whom feeding was delayed fare differently.

The same approach could have been used for
* any observation or hypothesis that need data to back-up

Finding out patterns and correlations – readmission of trach patients

Tracey, an HSC MICU, discusses with her colleagues that there are some patients who return to the ICU from the ward after they develop complications with their tracheostomies. They wonder why it might be that some of these patients have complications while others don't, and whether any specific nursing care is part of the cause. The HSC ICU data collector hears them talk and joins the conversation. She knows that the database collects information on when ICU patients are intubated, which diagnoses they have that might cause their intubation, and which diagnoses are causing a patient to be admitted to an ICU. She also knows that the Internal Medicine wards are included in the database, and that therefore information related to complications on the wards is available. By linking the data together, they will be able to find out if one of the reasons for readmission to ICU is related to tracheostomy complications from the sending ward. They look at the CCMDB wiki to find out that the database indeed already reports on re-admissions and their causes for all patients.

Tracey and the data collector email Julie, the statistician for the database, to find out if the information could be filtered to only include patients with tracheostomies. Julie replies that it would be possible to limit the readmission report to only patients with a tracheostomy from the sending ward. After some further conversation, they decide that they will extract the following information from the database:

- List and Frequencies of diagnoses for tracheostomy patients who were re-admitted, and for trach patients who were not readmitted for the last 5 years
- A list of patients with a trach who have been re-admitted to ICU after having been discharged in the last 5 years, including
  * The full list of diagnoses, and diagnosis type (admit, complication, comorbid) and the part of the stay where the dx was coded (ie during ICU admission or during med ward stay)
  * Time between discharge from ICU and re-admission
  * Patient age
- counts of patients with tracheostomy from the sending Medicine ward and return
- back to ICU for the past 5 years
- do the above at STB ICMS and check if the same pattern was observed

Two weeks later Tracey receives her data. When she reviews it she notices that, as expected, a lot of the re-admissions had mucus plugs related to trach care on the wards. However, she also finds out that patients with some pre-existing diagnoses are more likely to develop the mucus plugs than others. Tracey presents this finding at her next team meeting, and they decide inform the wards which patients are especially susceptible to trach problems, and need special attention.

The same approach could have been used for

- any phenomenon that need identification of causes and relationships to the outcomes

Before and after – introducing new wound care products

The community ICU at Seven Oaks is planning to introduce new wound cover products that need to be changed less frequently. Robin, the CRN, wonders whether the new products will make a difference to patient outcomes. Later that day Robin sees the data collector and asks her if the database has any information that would show if patients fare differently with the new products. Use of the new products is only indicated for moderate to high amounts of wound drainage, venous ulcers, packing wounds and pressure ulcers in stage III or IV; this would be included in the patients diagnoses, so it would be possible to extract data only for the population that would be potential users of the new product. They discuss further what sort of changes might be expected to be caused by the new product.

The reduced number of dressing changes should decrease nursing workload, but Robin is concerned if It might also impact length of stay, readmission and final outcome for patients, Robin wonders if this change should be accompanied by a PDSA cycle. Robin approaches the unit manager with the idea. The manager shares Robin's concern and they write up an email to Julie, the database statistician, to set up a phone call to discuss the project. At this meeting, they decide that the specific questions they will want to answer are:
* Does the new product have an impact on any of the following
** length of stay
** readmission rate
** time until readmission
** reasons for readmission
They also decide on the list of diagnoses that will cause patients to be included in the project data. Julie helps them prepare the data request form, and tells them that she will do a preliminary review of the data to find out how large of a sample would be required to determine if any change is caused by the new product.
The data extract is approved, and Julie determines that, after product introduction, we will need 75 patients who have at least one of the diagnoses we determined to have a large enough sample to know whether the new product has any of the hypothetical effects. Judging by past history, she expects it will take about 4 months to have enough data.

Four months after the introduction of the new product, Julie reviews the data and finds out that enough patients with the right diagnoses come through the unit. She extracts the data from the 75 patients who used the new product. She also extract data from 75 patients with same diagnosis grouping before the introduction of the new product. She compares the before and after implementation of the product using some statistical and analytical tests. She finds that the new product is not causing any negative impact, so Robin and her manager can rest assured that the new products are not harming their patients in the way they were concerned about.
If they had found negative outcomes from the new product, a change back to the old product or to a different product could have been recommended, and the outcomes of this change could have been similarly evaluated in the future.

The same approach could be used for:
* any other PDSA cycle, such as
** new equipment
** new drug
** new process

Come talk to us, we would like to see you!
Visit us in JJ387 and at https://ccmdb.kuality.ca
jmojica@hsc.mb .ca (204) 787-1690