

Clinical Information Needs in an Academic Family Medicine Center

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Overview

- What are physicians doing when they have a question about the care of their patient?
- Do they have questions?
- What are the questions about?
- Are they pursuing answers to these questions?
- What resources are they using to try to answer these questions?
- Are the resources useful?

Most Clinical Questions Are Not Answered

- When asked at the end of the day, most physicians can recall 1-2 clinical questions that went unanswered.
- Clinicians ask 1 to 3 questions for every 3 patient visits
- Clinicians seek answers to 4 of 10 questions
- Clinicians find answers to only 3 of the questions
- About 7 of every 10 clinical questions go unanswered.

Overview

- Medical knowledge doubling time in 2020: 73 days¹
- Evidence from literature shows information needs of clinicians has not been met²⁻⁶
- Most studies have used surveys^{2, 7-9}
- Only two studies specific to ambulatory care setting^{2, 10}



Overview

STUDIES ARE CONCERNED WITH RESOURCES THAT ARE BEING USED TO ANSWER QUESTIONS IN THE CLINICAL SETTING:

- Textbook (Harrison's)
- Journal
- Handheld programs (ePocrates)
- Drug handbook (PDR)
- Self-made notebook
- Computer software (UpToDate)
- Medline search (CD Plus)
- Specialist
- Attending
- Colleague
- Pharmacist
- Other

Overview

OF THESE SOURCES, WHAT IS THE:

- Frequency (how often)
- Timing (when)
- Barriers
- Amount of knowledge
- Confidence
- Availability (readily available)
- Accessibility (ease of use)
- Applicable (is the info relevant)

Overview

Of the two studies specific to an ambulatory care setting:

- Covell et al reported 267 questions during interviews immediately after 409 patient visits, with only 30% of questions being answered
- Ely et al reported 41 questions after 602 patient visits, with 88% of questions being answered
- Curley et al attempted to explain the differing results by suggesting a cost-utility judgement analysis

Clinical Information Needs in an Academic Family Medicine Center

- Longitudinal study to characterize the information needs and information seeking behavior of health care providers in an academic ambulatory care setting.
- Information is sought at the point of care.
- Information is not patient specific.
- Project began in 1997.

Purpose

“The purpose of this study is to further elucidate the clinical information needs of providers in the ambulatory care setting. The types of questions that prompt search for knowledge sources and the frequency of use of various information sources are the chief interests. The timing, frequency, and barriers to the use of various information sources will be measured in an attempt to validate observable features specified by the model proposed by Curley et al.”

Infoneeds Project History

Phase 1- 1997, Before handhels, and the internet was in its infancy. Relied on internal libraries and networked CD's.

Phase 2- 2003, After handhels, and the internet was building, but Uptodate didn't exist.

Phase 3- 2008, The internet is a central information source. Handheld devices are ubiquitous, but the iPhone was announced June 29, 2007.

Phase 4- 2012, in 2010, Android overtook iOS in market share. App voted word of the year 2011.

Phase 5- 2019, number or apps 2.1 million, number of app downloads 178 billion.

Clinical Information Needs Hypothesis

Usefulness of information =

Relevance x Validity

Work

Usefulness -> Frequency of Use

Curley's Model (1990)

- Resource benefits
 - Extensiveness
 - Relevance
 - Credibility
- Resource costs
 - Availability
 - Searchability
 - Understandability

Methods

Subjects

- Family medicine practicing physicians
- PGY3 residents
- PGY2 residents
- PGY1 residents
- PA's
- Observed during 2-4 half-days of clinical activities
- Consent forms obtained beforehand
- No contact with patients

Methods - Setting

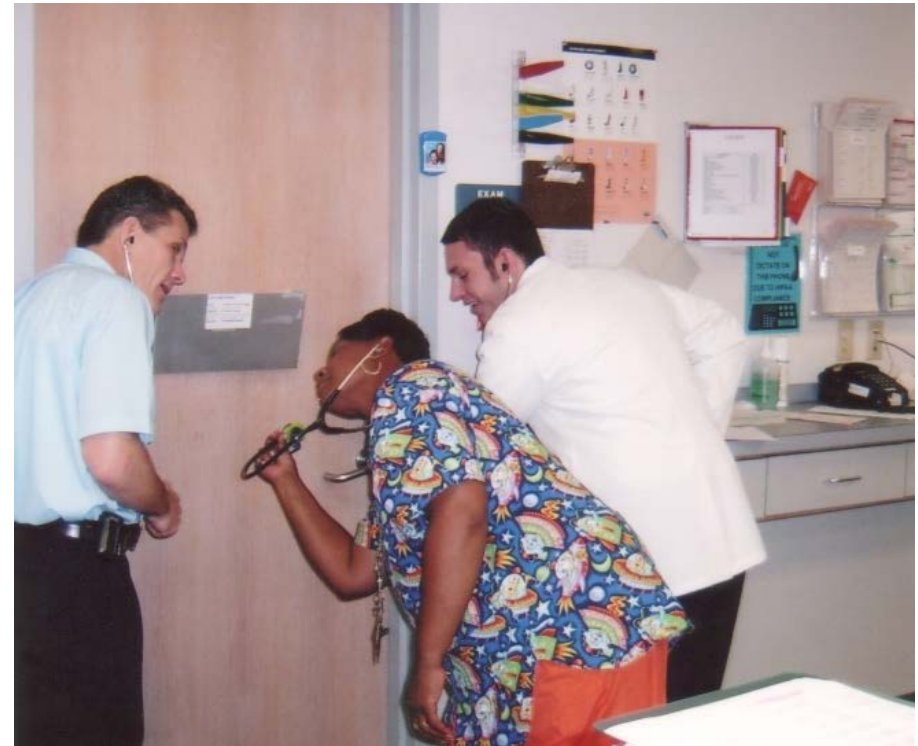
- University of Oklahoma Family Medicine Clinic.
- Providers have access to the internet, Bird Library resources, and various internal information resources.
- Small library within the clinic that contains a selection of books from the Brandon-Hill Suggested Books for a Small Medical Library.



Methods

Data Collection

- Observer will collect information on a pre-determined form throughout the half-day
- Sequence of questions, type of resource, name of resource, time spent searching
- “We need to know if you have any questions related to the care of the patients you are seeing in this clinic session. We need to know what the question is, whether you have found an answer, and the source for the answer.”



Methods

Data Collection

- Pre-observation questionnaire, opinions about medical resources using Likert scale
 - Frequency: <1/month, monthly, weekly, daily, several times a day
 - Amount, confidence, availability, easy to find info within, understandability, applicable on 1 to 5 scale (not to very)

Methods

Analysis

- Data collected in Access
- Data analyzed using SPSS

Results – Earlier Observations

- 215 providers were observed
- Most over two half-day clinical sessions
- 2,216 questions generated
- 1.1 questions/patient
- 94% of questions answered

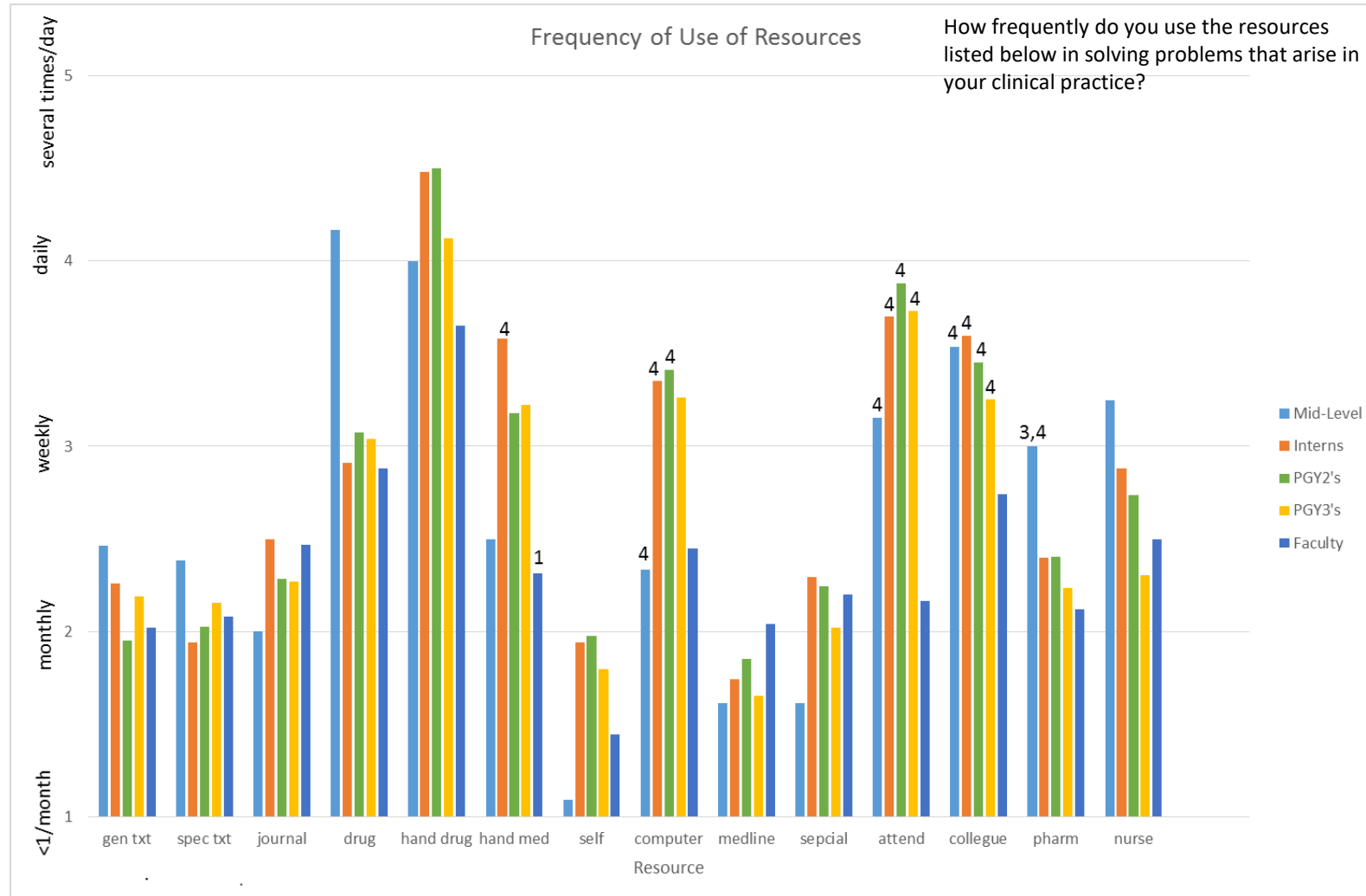
Most Recent Data

- 38 half-day observations
- 123 questions
- 24 providers
- 19 surveys for 2019

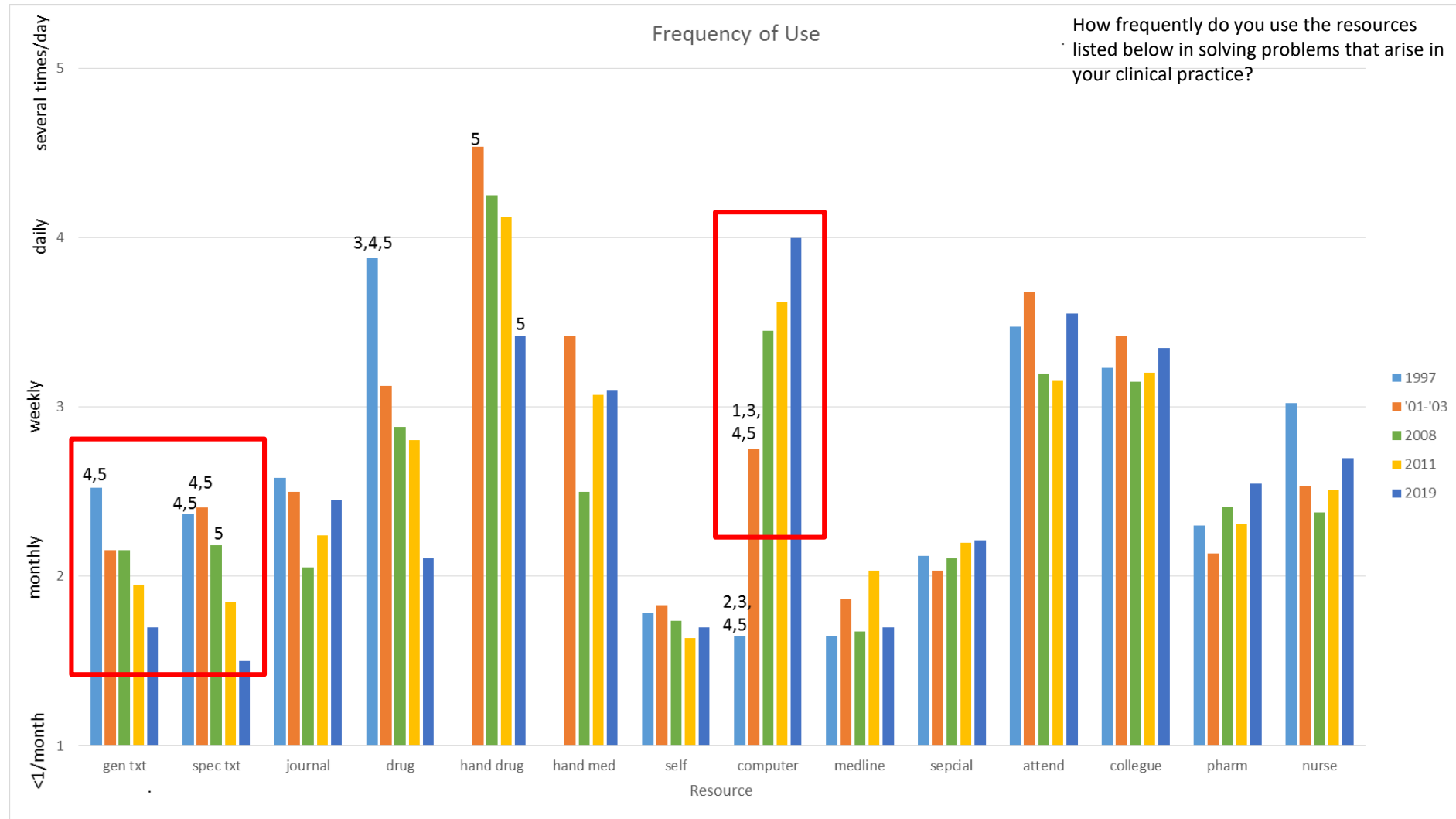
Results

- Analyzed survey data from 1997 to present (197 surveys)
- Coded year and provider level in numbered system
- SPSS for means, standard deviation, and Tukey's for significance

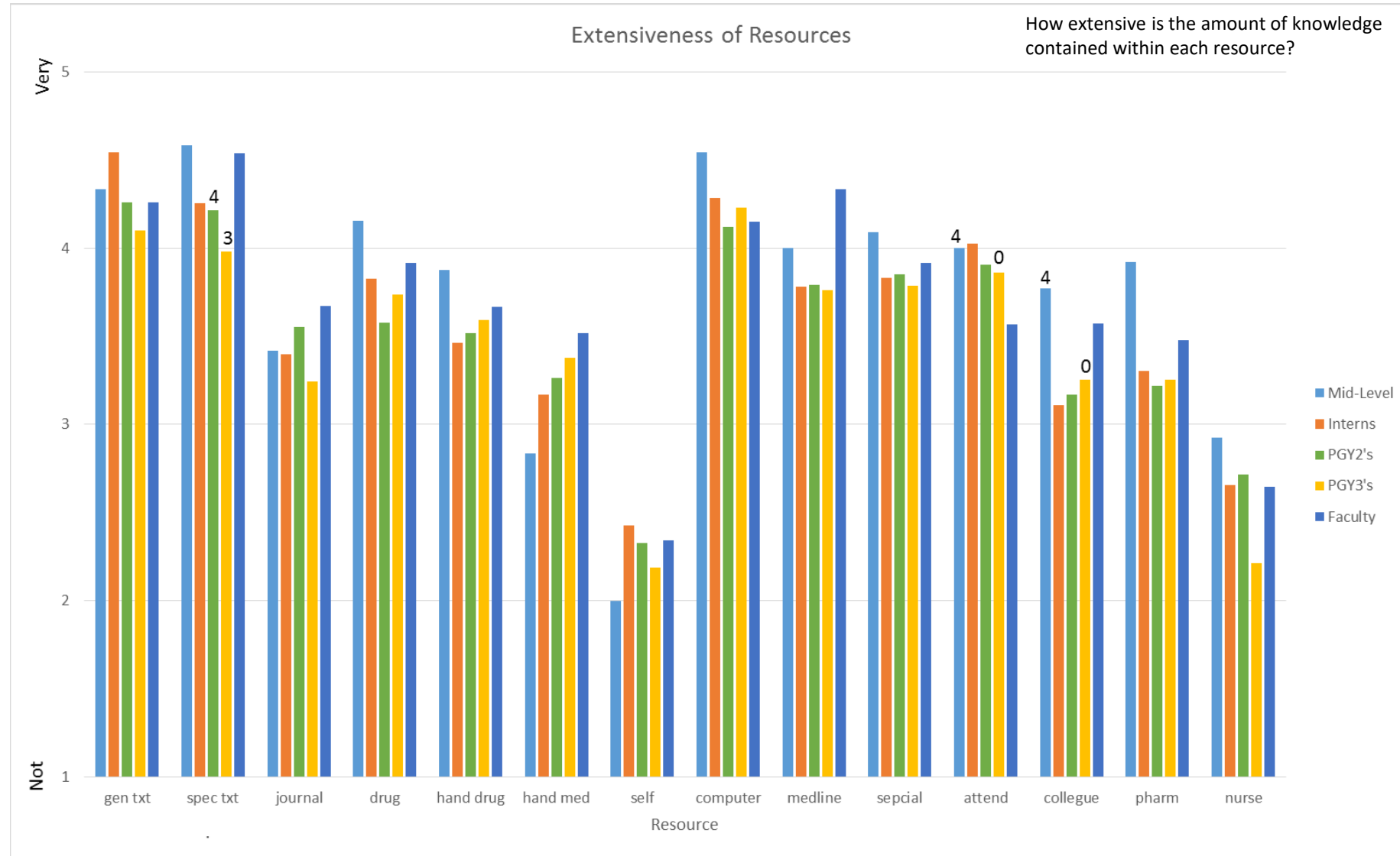
Frequency – Provider



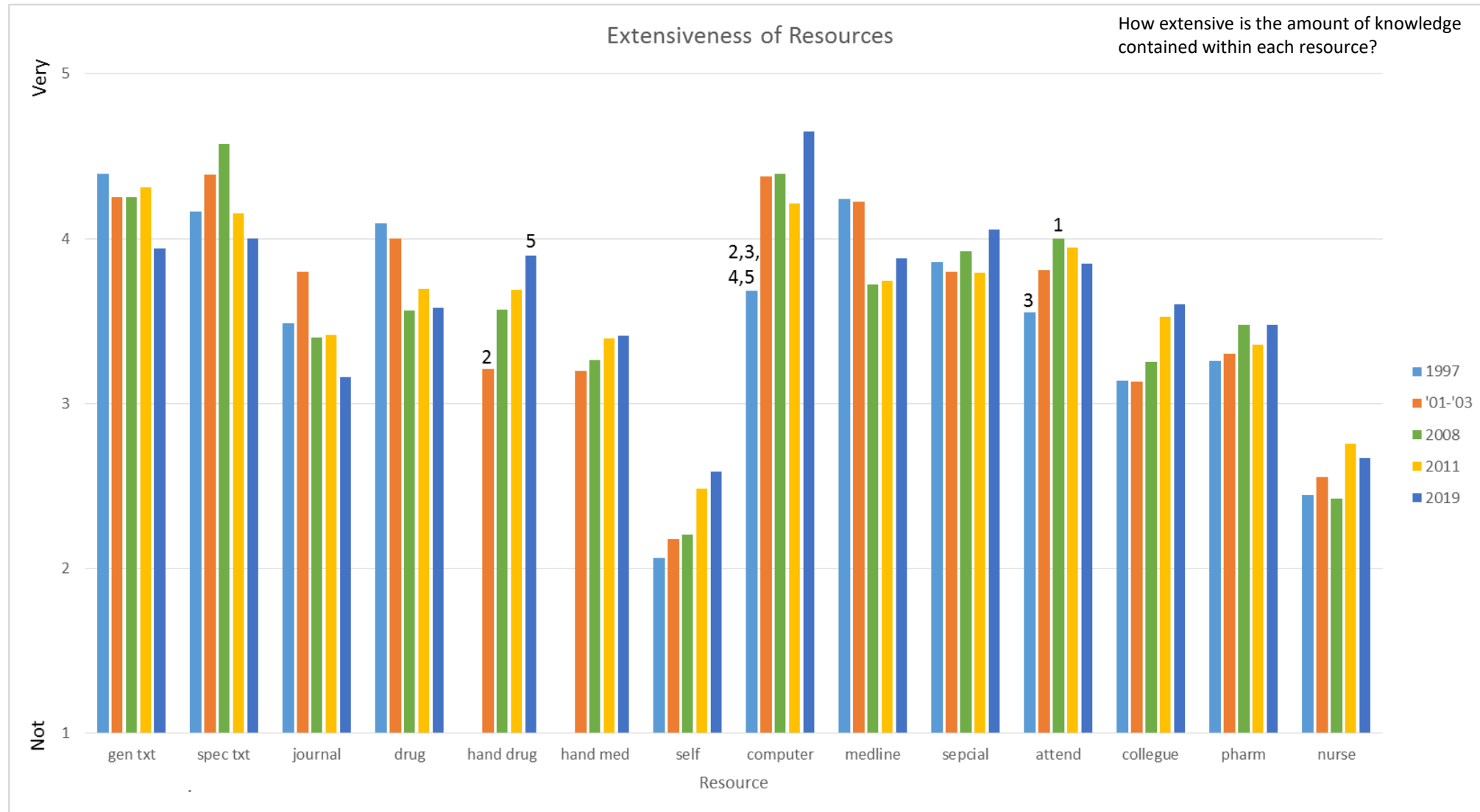
Frequency – Year



Extensiveness – Provider



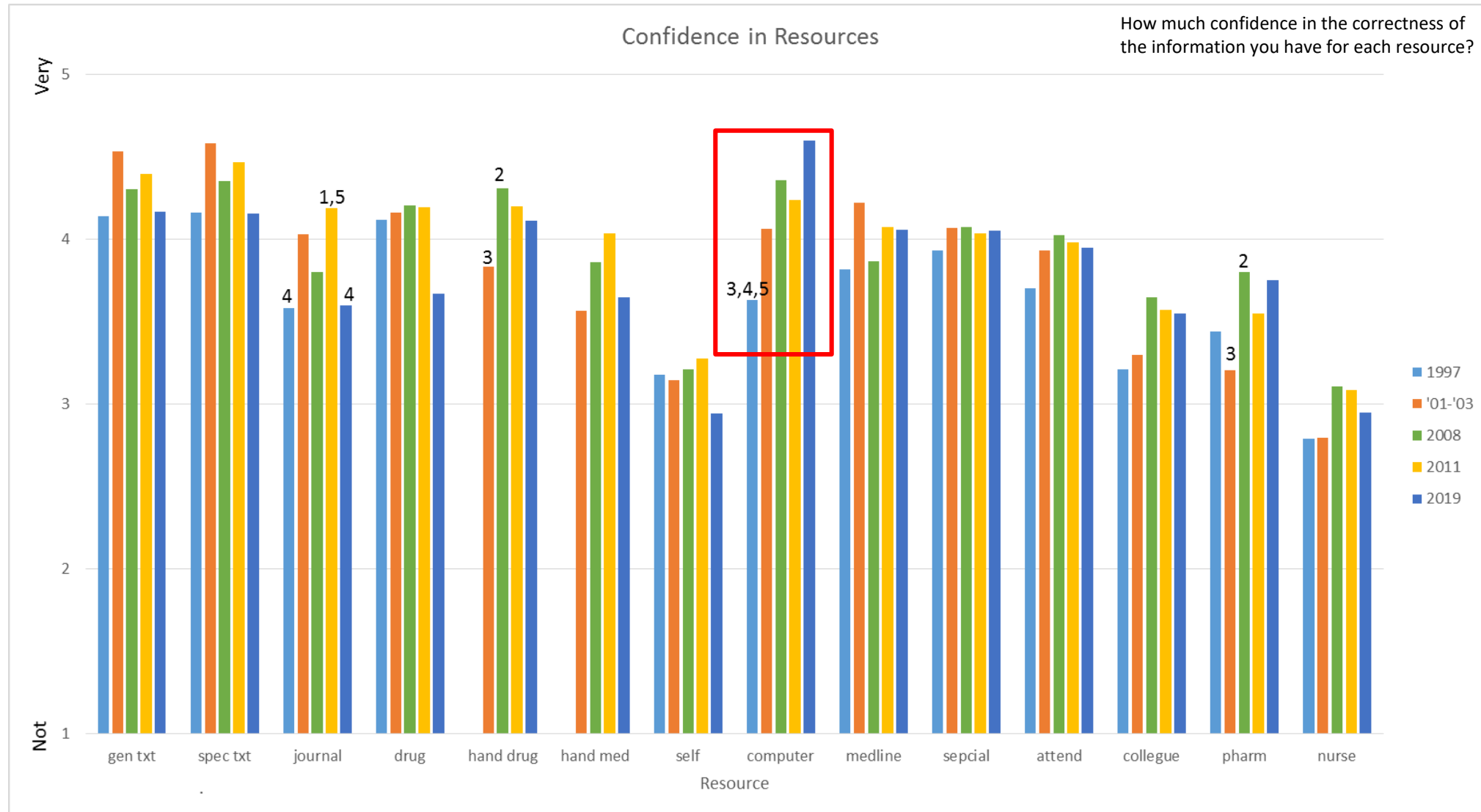
Extensiveness – Year



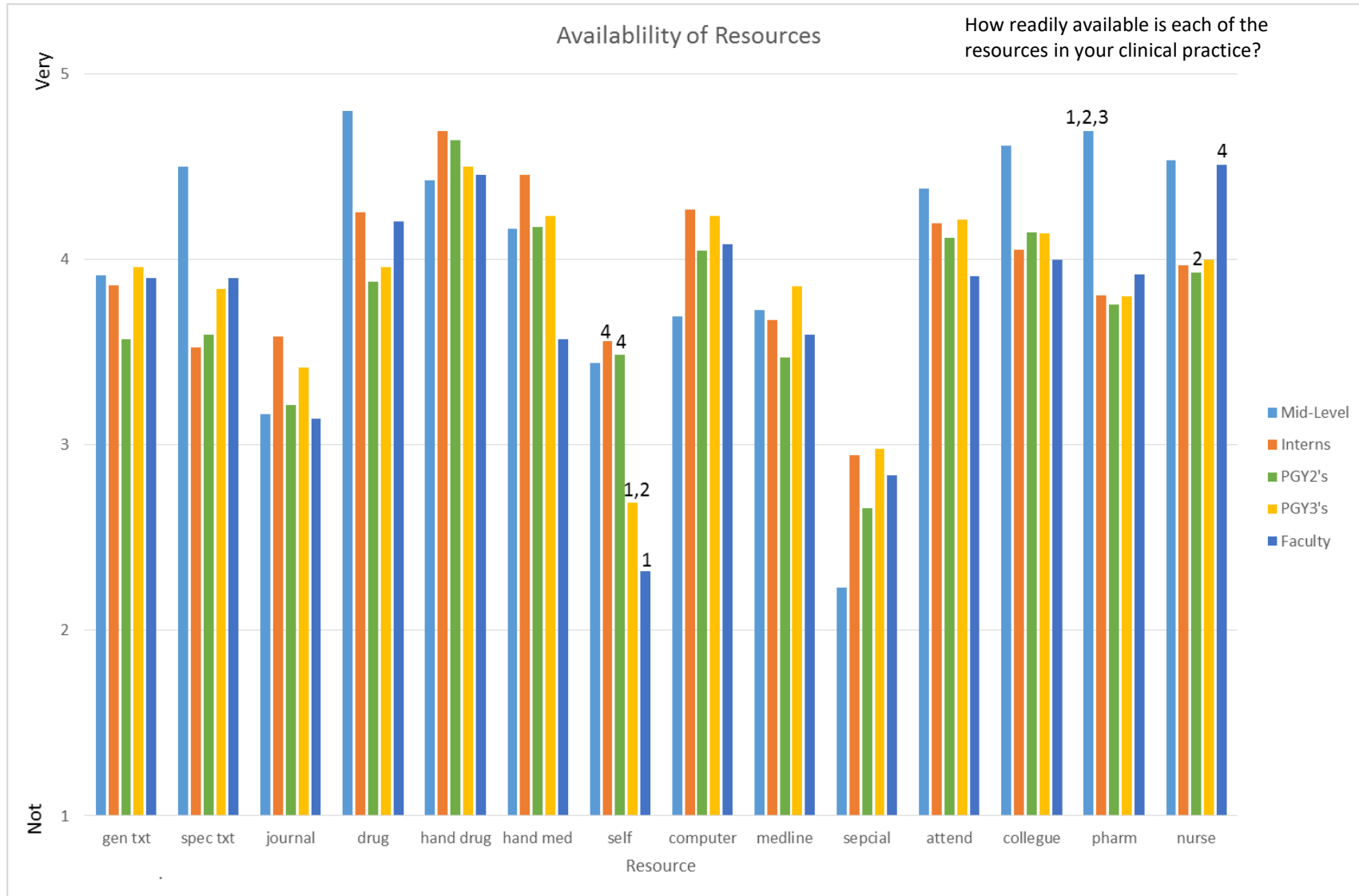
Confidence – Provider



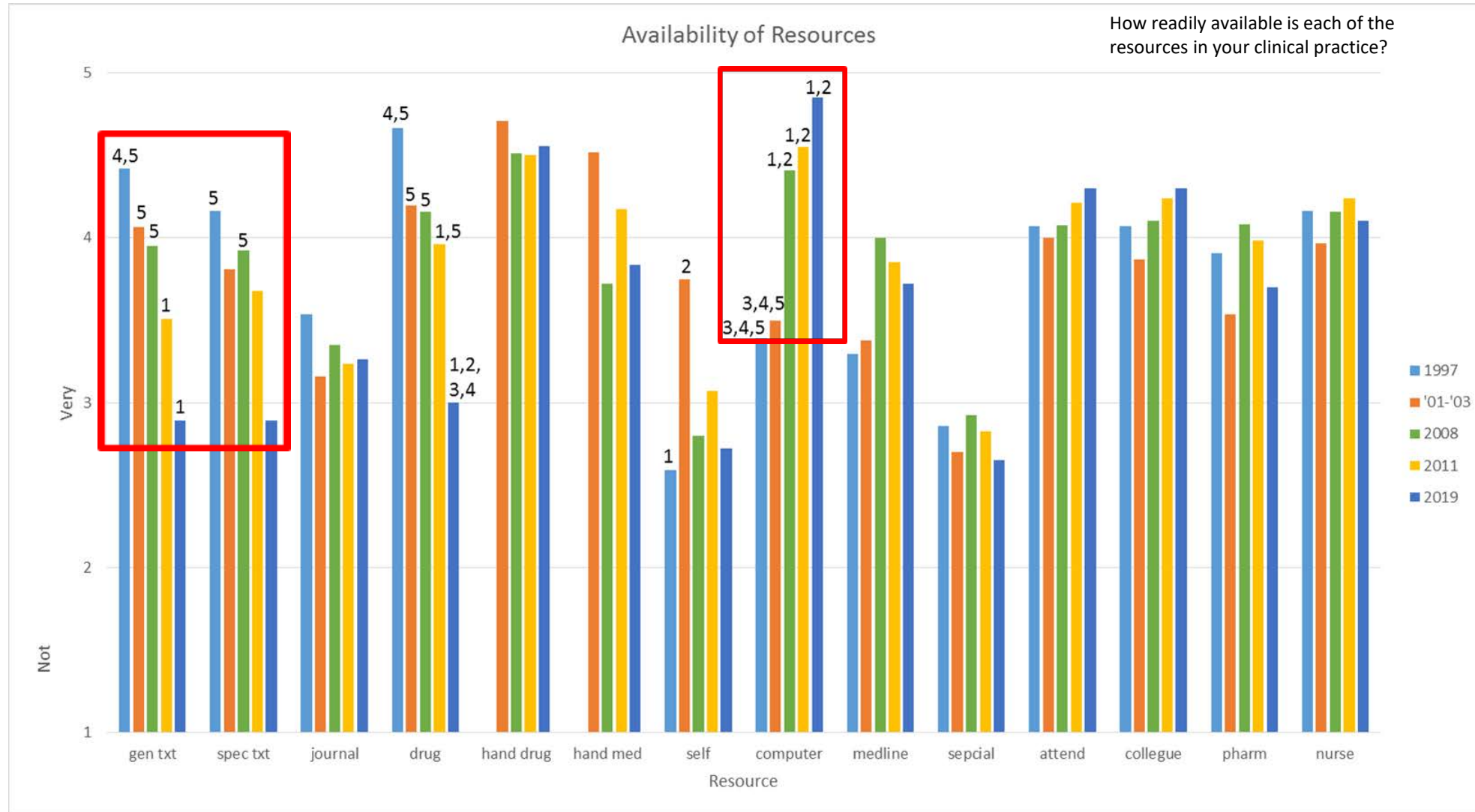
Confidence— Year



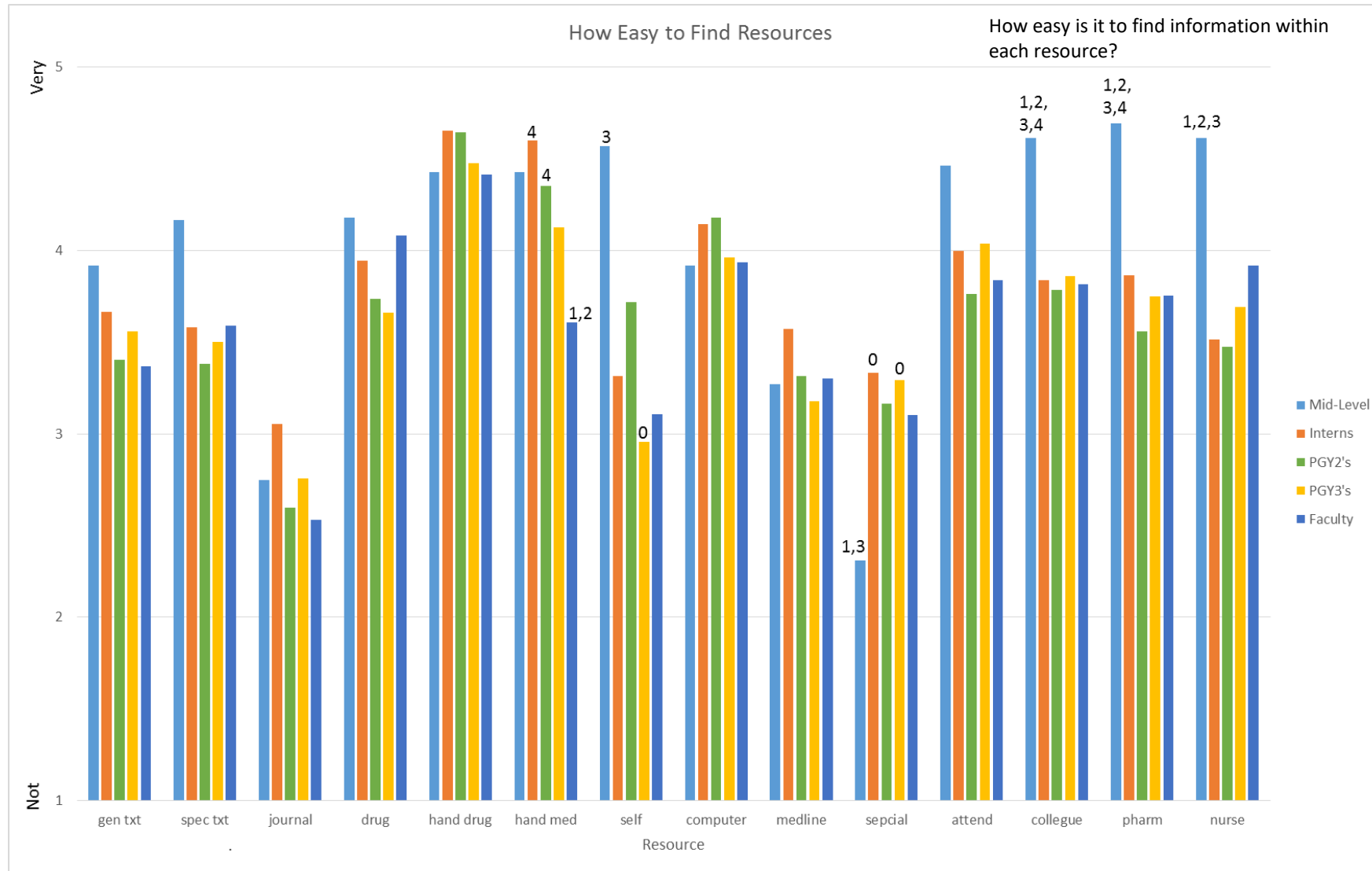
Availability – Provider



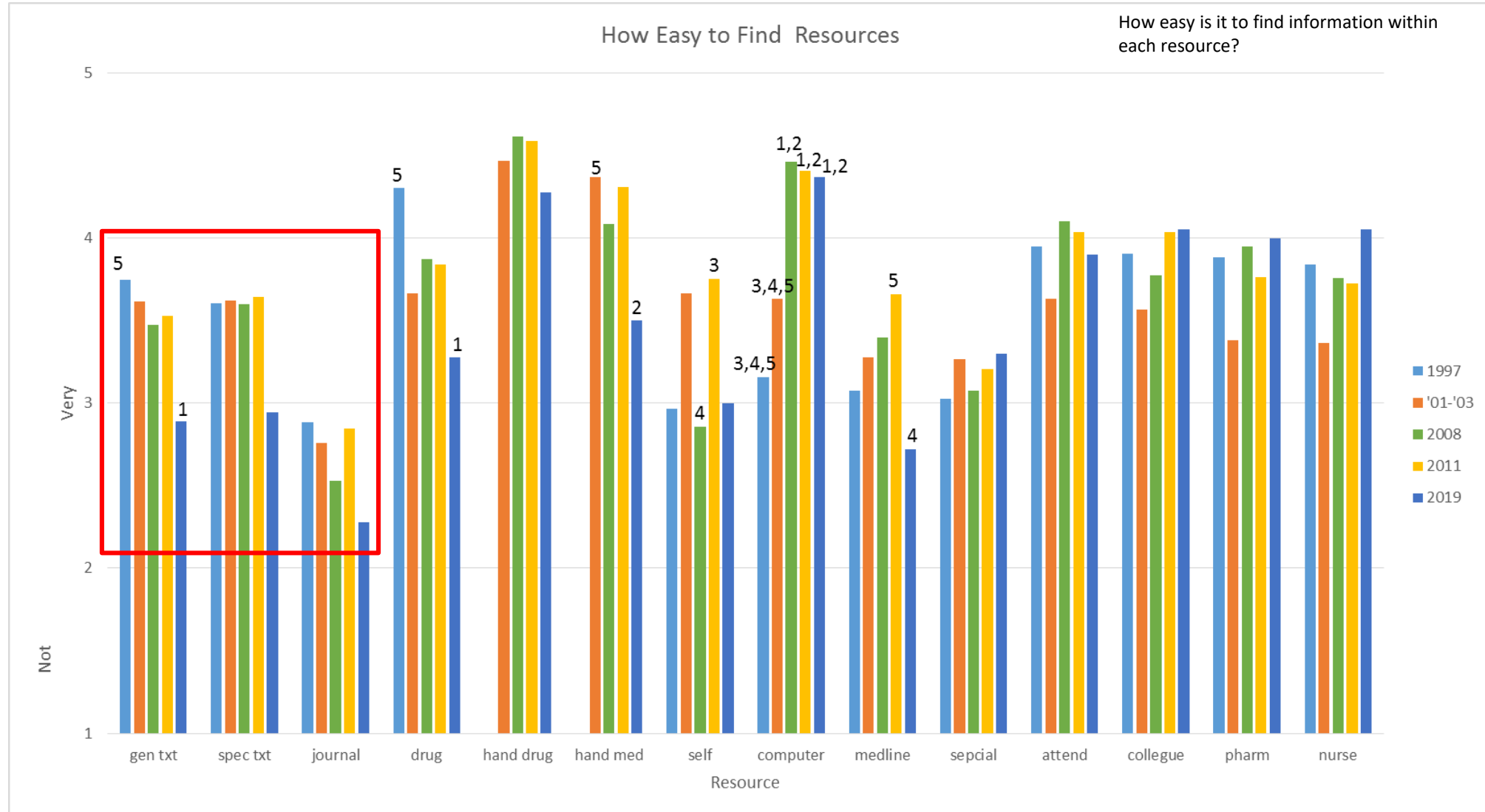
Availability – Year



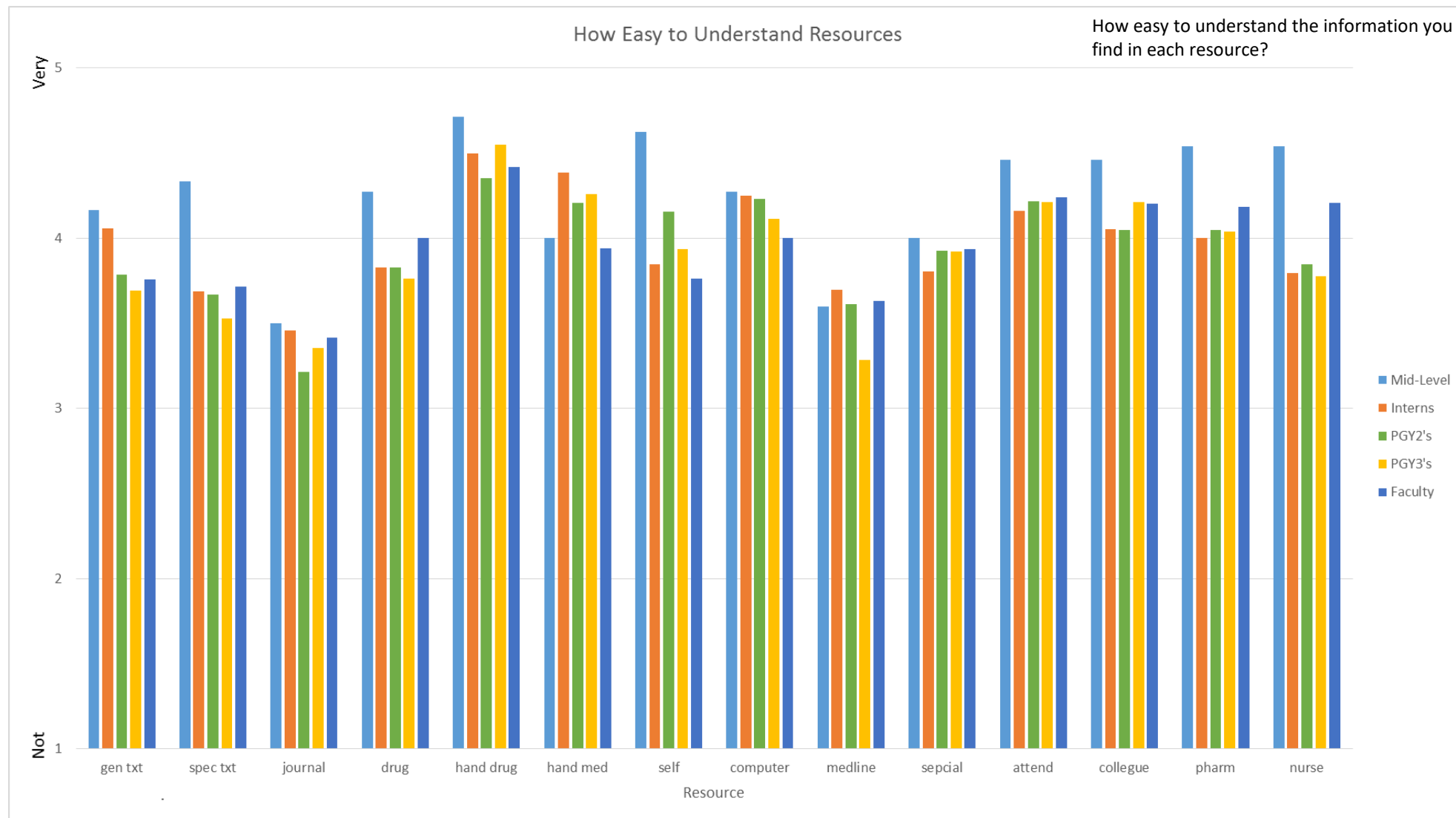
Find – Provider



Find – Year



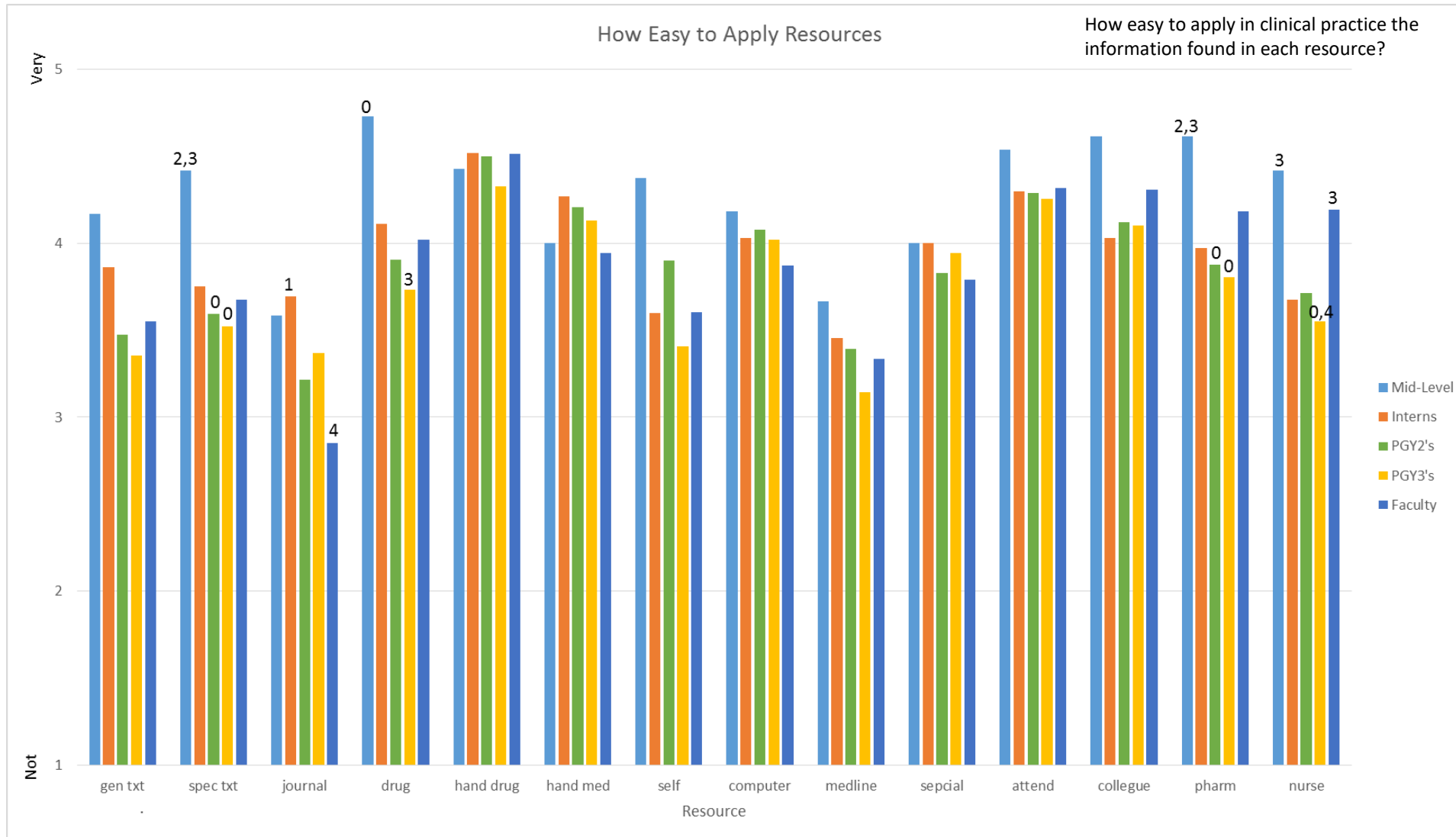
Understand – Provider



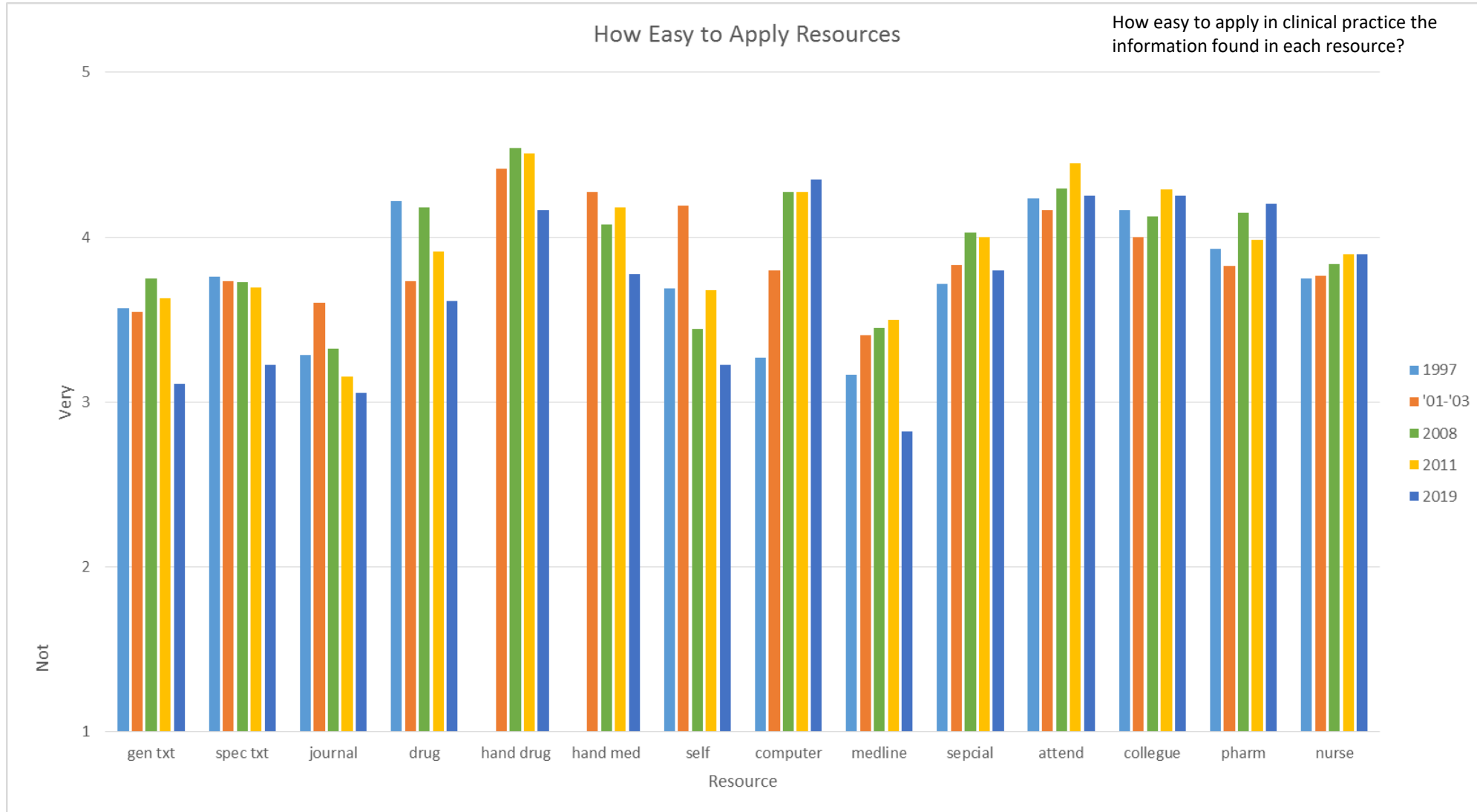
Understand – Year



Apply – Provider



Apply – Year



A Few Notes

- Electronic resources are, and will continue to be, a driving force of information use in the clinical setting
- Mid-level providers consistently scored resources higher than others
- Handheld device decline might be explained by increase in computer usage and changes in EMR

Next Steps

- Multivariate analysis of survey data to validate the Curley information needs model according to provider level over time
- Analysis of observations to describe information seeking at the point of care
- Taxonomy for observations according to Ely
 - Ely et al. A taxonomy of generic clinical questions: classification study. *BMJ* 2000;321:429
 - Classify the type of questions are being asked
 - Diagnosis
 - Treatment
 - Management
 - Epidemiology
 - Nonclinical (administrative, legal, ethics, etc.)
- Completion of a new systematic review of information needs at the point of care

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