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To cite this article: Alicia L. Nobles, Brett A. Curtis, Duc A. Ngo, Emily Vardell & Christopher P. Holstege (2018): Health insurance literacy: A mixed methods study of college students, Journal of American College Health, DOI: [10.1080/07448481.2018.1486844](https://doi.org/10.1080/07448481.2018.1486844)

To link to this article: <https://doi.org/10.1080/07448481.2018.1486844>



Accepted author version posted online: 06 Jul 2018.



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Publisher: Taylor & Francis

Journal: *Journal of American College Health*

DOI: <https://doi.org/10.1080/07448481.2018.1486844>

Health insurance literacy: A mixed methods study of college students

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ABSTRACT

Objective: This study examines the health insurance literacy, or the ability to use health insurance effectively, of college students.

Participants: A total of 455 students from a large, public university completed an online questionnaire in November 2016.

Methods: A questionnaire examined students' knowledge of commonly encountered health insurance terms and ability to apply that knowledge to determine cost-sharing in a clinical setting.

Results: The majority of students were able to correctly identify the most commonly encountered terms, but could not identify terms related to plan types and options. Eighty-eight percent of students could not determine their cost-sharing for two presented scenarios. Approximately half of the students indicated they had been confused about their health insurance plan, with one-quarter of students stopping or delaying medical care due to confusion.

Conclusions: Outreach and education for students should target specific deficits in knowledge such as those identified in this study.

KEYWORDS

Health Literacy, Health Insurance Literacy, Decision-making, Insurance, Access to Care, Health Education

INTRODUCTION

Health literacy, defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions^{1(p3)}” has garnered increased attention in recent years. The current attention on health literacy often overlooks the importance of health insurance literacy. Health insurance literacy is defined as “the degree to which individuals have the knowledge, ability, and confidence to find and evaluate information about health plans, select the best plan for their own (or their family’s) financial and health circumstances, and use the plan once enrolled^{2(p7)}.”

There have been limited studies examining health insurance literacy³⁻⁵. However, these studies consistently demonstrate that individuals have trouble understanding cost-sharing terms, such as premiums, deductibles, and copays⁶. For example, in a survey of individuals who are insured, only 14% of the individuals were able to correctly answer four questions about deductibles, copays, coinsurance, and out of pocket (OOP) maximum³. In a nationally representative survey that measured knowledge of health reform and awareness of health insurance, respondents had limited knowledge of health reform and insurance⁴. In a study of young adults enrolling in a health insurance marketplace, the percentage of participants who correctly defined commonly encountered insurance terms was low: only 15% defined a health maintenance organization (HMO), 18% defined preferred provider organization (PPO), 18% defined coinsurance, 42% defined OOP maximum, and 52% defined a deductible⁵.

These studies suggest that, in general, U.S. citizens are not prepared to navigate the health insurance marketplace or effectively utilize their health insurance plans. Specifically, understanding a health insurance plan is a key component to enable timely access to health care services, and, ultimately, improve health outcomes⁷. With the shifting landscape of health care policy and heightened push towards consumer-directed plans, such as high deductible health plans paired with a spending account such as a health savings account (HSA), consumers are expected to be increasingly self-reliant and proficient in selecting and navigating health insurance coverage. Furthermore, there have been limited efforts to address health insurance literacy^{8,9}. Increased attention, and research in health insurance literacy is imperative to ensure that individuals can successfully make informed decisions about their health care and help inform successful health policy reform¹⁰.

With an estimated 20.7 million students expected to enroll in U.S. colleges and universities in fall 2018, college students represent a significant portion (~6%) of the total U.S. population^{11,12}. Despite this, college students have gone almost entirely unrepresented in the health literacy discussion: a limited number of studies have examined the health literacy of college students¹³⁻¹⁵ and, to the best of

the authors' knowledge, no study has specifically examined health insurance literacy of college students. Available studies suggest that students have adequate functional health literacy. For example, in one study, 99% of students scored as having adequate health literacy on the "gold standard" of health literacy assessments, the Test of Functional Health Literacy in Adults (TOFHLA)¹⁴. However, 41% of the students in that study were unable to determine their financial responsibility when the cost of clinical services are based on family size and income¹⁴. This question on the TOFHLA is a simplification in comparison to the real-world complexity of determining cost-sharing with health insurance. Although college students are considered a highly numerate and literate population, the aforementioned study indicates that higher education may not correlate with increased ability to navigate the U.S. health care system. Additionally, recent college graduates may comprise a large portion of individuals enrolling in health insurance for the first time. Their ability to select an appropriate coverage option and navigate their coverage is necessary for health insurance systems to function appropriately. Large health insurance plans are structured so that younger, healthier individuals offset the costs of other individuals on the same plan who may require more health services.

Currently, the only validated method for measuring an individual's health insurance literacy is the Health Insurance Literacy Measurement (HILM)⁷. The HILM asks individuals to self-report their ability to select appropriate coverage levels and, therefore, is a measurement of an individual's self-efficacy rather than their ability to provide definitions of core terms. To the best of the authors' knowledge, there is no existing validated tool that asks individuals to select appropriate definitions rather than report their confidence in their abilities.

The objective of this study was to pilot a questionnaire for measuring health insurance literacy and examine students' knowledge of commonly encountered health insurance terms, ability to apply that knowledge to determine financial responsibility in a clinical setting, and better understand their experience with health insurance.

METHODS

Development and Distribution of Questionnaire

This study was a cross-sectional survey using an online questionnaire to collect data. The questionnaire was developed based on publicly available term definitions and adapted patient cost responsibility scenarios from HealthCare.gov¹⁶ to evaluate students' health insurance literacy. HealthCare.gov is a website maintained by the U.S. Centers for Medicare and Medicaid Services that presents definitions for health insurance terms¹⁶. The questionnaire collected information on demographics, knowledge of health insurance vocabulary, ability to apply the vocabulary to determine financial responsibility, self-rated understanding of vocabulary knowledge, and personal experiences using and selecting health insurance. A copy of the questionnaire is provided in Appendix A in the Supplemental Material.

Demographics

The questionnaire collected demographic information, including gender, age, U.S. residency status, school of enrollment, student standing, whether the respondent was insured by the university student health insurance plan (SHIP) and the payer of the premium for the student's plan, for comparisons of health insurance vocabulary knowledge among groups.

Health Insurance Vocabulary

In consultation with the university student health center services, we identified 20 health insurance-focused vocabulary terms available on HealthCare.gov that are commonly encountered in insurance plans (see Figure 1 for terms). For example, deductible was selected for inclusion but primary care provider, which is not insurance-specific terminology, was not selected. The terms were grouped into four categories: cost-sharing, navigating the plan, pharmacy, and plan types and options (see Figure

1 for terms). The questionnaire consisted of 20 fill-in-the-blank multiple-choice questions. For each of the 20 terms, a definition was provided and the respondent selected the corresponding term. Question and answer choice order were randomized for each respondent.

Financial Responsibility for Medical Scenarios

The questionnaire included two multiple-choice questions that presented a medical scenario and plan benefits (see Table 1 for scenarios). For each scenario, the respondents were required to apply a set of health insurance plan benefits to determine their financial responsibility from four choices.

Self-Rated Understanding

Respondents were asked to self-rate their understanding of insurance terminology on a five-point Likert-type scale ranging from very poor to very good, prior to initiating the questionnaire and again following the completion of the questionnaire.

Usage and Evaluation of Health Insurance Plan

The questionnaire included two dichotomous yes/no questions to capture if respondents have felt confused about their health insurance plan and delayed or foregone medical care because of confusion. The first question asked respondents if there had been a time when they were confused about their health insurance or selecting a plan and, if so, a free-text field was provided for the respondent to describe this experience. The second question asked respondents if their lack of understanding had ever stopped or delayed them from seeking medical care.

Expert and Student Review

Before distributing the questionnaire to study respondents, four health experts, who were clinicians or staff at the university student health center, reviewed the questionnaire and provided

feedback on the appropriateness and clarity of each question. Following the expert review, two separate groups of students, six undergraduate and six graduate students, reviewed the questionnaire in a focus group setting and provided intensive feedback on each question. Comments were used to improve the questionnaire.

Distribution

Prior to distribution of the questionnaire, the study protocol was approved by the university Institutional Review Board for Social and Behavioral Sciences. Respondents were recruited through an invitation to participate that included a link to the questionnaire distributed to the entire student body of the university using two methods: (1) through emailing the Student Council listserv, and (2) through the university class pages for the class of 2017 through 2020 on Facebook. The invitation was distributed in November 2016 and open for four weeks. The questionnaire was administered through the Qualtrics website and was anonymous, with the exception that the first 150 respondents could provide an email to receive a \$5 digital gift card for coffee. Respondents were not given a time limit to complete the questionnaire; however, it was constructed so respondents could only move forward with the questionnaire (i.e., they were not able to move backwards and alter responses).

Quantitative Analysis

Each vocabulary term was assigned a score of one if the term was correctly identified and zero if incorrectly identified. The number of correctly identified vocabulary terms was summed and divided by 20 to convert to a scale of 0 to 100 to obtain the percentage of correctly identified vocabulary terms for a score of vocabulary knowledge. For financial responsibility, raw scores of the number of correct determinations of financial responsibility are reported, ranging from zero to two.

Descriptive statistics were performed to describe demographic characteristics of the respondents. Wilcoxon rank-sum tests were used to evaluate group differences in respondents'

vocabulary knowledge by gender, student standing, year in undergraduate class, type of health insurance plan, and payer of the premium for the student's plan. Kendall's rank correlation was used to compare students' vocabulary knowledge to the number of times the student correctly answered the scenarios. Spearman's rank correlation was used to compare students' scores for vocabulary knowledge to their self-rated understanding measured prior to the questionnaire.

Qualitative Analysis

The free-text responses describing a time when respondents were confused about selecting or using health insurance indicated that their experience with health insurance is diverse and included details that were not captured by the quantitative portion of the survey alone. Therefore, thematic analysis of the open-ended responses was performed to identify emergent themes.

In the first round, one author (AN) independently open coded the responses until thematic saturation was achieved with no additional topics identified. Two authors (AN and BC) made refinements to the coding scheme to agree on an initial codebook. Using the initial codebook, the two authors independently coded a randomly selected twenty percent of the responses, discussed any points of disagreement, and made refinements to the coding scheme achieving a strong interrater reliability score of 0.94 (Cohen's kappa) and 0.93 (percent agreement). Using the final coding scheme to code all of the open-ended responses, the same two researchers each coded half of the remaining responses and reviewed the codes for each other's half, resolving any identified discrepancies.

RESULTS

A total of 461 respondents completed the questionnaire. After excluding respondents who skipped one or more questions (1.3%, n = 6), 455 responses were available for analysis.

Demographics of Respondents

Respondents were primarily female (68.6%, n = 312) and domestic students (96.7%, n = 440) with a mean age of 19.7 for undergraduates and 25.4 for graduate students. Approximately half of the respondents were undergraduate students (54.7%, n = 249) and the remaining were graduate students (45.3%, n = 206). Most students reported enrollment in the schools of arts and sciences (55.2%, n = 251) compared to medicine and nursing (19.3%, n = 88), business and law (17.1%, n = 78), and engineering (8.35%, n = 38). Most respondents (71.2%, n = 324) indicated that they are insured by a health insurance plan offered outside of the university, compared to respondents who indicated that they are insured by the university SHIP, which is managed by a third-party (28.8%, n = 131). Additionally, most respondents indicated that their health insurance premium is paid for by either a family member, graduate student subsidy, or scholarship (84.4%, n = 384) compared to self-paid (14.1%, n = 64). Seven respondents (1.5%) were unsure how their premium was paid. Table 2 provides a summary of the respondents' demographics.

Health Insurance Vocabulary

Respondents correctly identified 20% to 100% of the vocabulary terms with a median score of 75% (i.e., 15 of the 20 terms were correctly identified). Most students were able to correctly identify health insurance terms related to pharmacy, plan navigation, and cost-sharing. The term coinsurance was the exception, with only 27% of students correctly able to identify the term correctly. Students also struggled with terms related to plan options — only 25% of students correctly identified flexible spending account (FSA), 31% identified HMO, 37% identified health reimbursement account (HRA), 64% identified HSA, and 65% identified PPO. Only 2% of students were able to correctly identify all terms related to plan options followed by cost-sharing (18%), plan navigation (44%), and pharmacy (69%).

Figure 1 presents the percentage of respondents that correctly identified each vocabulary term.

There were statistically significant differences ($p < 0.001$) in vocabulary knowledge for all demographics except gender. Undergraduate students scored lower in vocabulary knowledge than graduate students. Underclassmen undergraduate students (i.e., first- and second-year students) had lower scores than upperclassmen undergraduate students. Students who reported paying their own premium had higher scores for vocabulary knowledge than students who indicated their premium was paid by scholarship, family, or a university-provided subsidy. Most students who pay their own premiums were graduate students in professional studies (i.e., business, law, and medicine) (89.1%, $n = 57$). Students who indicated that they do not pay their own premium were primarily undergraduate students (62.4%, $n = 244$), who indicated a family member paid their premium (98.8%, $n = 239$). Finally, students who indicated that they were insured by the university SHIP had higher vocabulary knowledge scores than those who were insured by a plan offered outside of the university. Although there were not enough international students to test significance, international students performed similarly to domestic students. Table 3 presents the comparisons of group differences in vocabulary knowledge.

Financial Responsibility for Medical Scenarios

Only 11.9% ($n = 54$) respondents could correctly determine their financial responsibility for both presented scenarios. Approximately half of respondents (54.9%, $n = 250$) could not determine their financial responsibility for either scenario and 33.2% ($n = 151$) correctly determined their financial responsibility for one scenario. In scenario one, the highest percentage of students correctly determined a financial responsibility of \$3,000 (38.0%, $n = 173$), which accurately represents applying a deductible first then coinsurance. However, many students selected a financial responsibility of \$2,200 (28.4%, $n = 129$) and \$4,000 (24.6%, $n = 112$), which incorrectly represent applying coinsurance first then the deductible and the OOP maximum, respectively. In scenario two, the highest percentage of students incorrectly answered that they were only responsible for the copay of \$20 (38.5%, $n = 175$). Many

students also incorrectly selected \$30 (36.5%, $n = 166$), which represents applying coinsurance then copay. The correct answer was \$28 (18.9%, $n = 86$), which represents a copay then coinsurance. Vocabulary knowledge was positively correlated with the ability to correctly determine financial responsibility for the medical scenarios ($r_r = 0.20$, $p < 0.001$). Table 1 presents the scenarios and how the respondents answered each scenario.

Self-Rated Understanding of Health Insurance

Prior to initiating the questionnaire, most respondents (63.7%, $n = 290$) self-rated their understanding of health insurance vocabulary as fair to very good; after the questionnaire, this dropped to 41.1% ($n = 187$). Only 17.6% ($n = 80$) of respondents thought their understanding was good to very good prior to initiating the questionnaire; this dropped to 9.5% ($n = 39$) after responding to the questionnaire (see Table 4). Additionally, self-rated understanding prior to initiation of the questionnaire was positively correlated with vocabulary knowledge ($r_s = 0.33$, $p < 0.001$). That is, those who self-rated their understanding of vocabulary terminology higher correctly identified more vocabulary terms.

Confusion About Health Insurance

Approximately half of the respondents (50.8%, $n = 231$) indicated that they had been confused about selecting or using their health insurance plan. Approximately one-quarter of respondents (24.4%, $n = 111$) indicated that their lack of understanding stopped or delayed them from seeking medical care in the past.

Of the 231 respondents that indicated they had been confused, 161 respondents (69.7%) described their confusion in the associated free-text field. We excluded 24 respondents who indicated vague or general confusion that could not be categorized, such as “I just don’t understand how the

system works” (P248), resulting in 136 comments from respondents. Comments were most commonly themes related to benefits and coverage (42.6%, n = 58), cost-sharing (36.0%, n = 49), and selecting a health insurance plan (20.6%, n = 28). Table 5 presents themes and subcodes within each theme from most to least prevalent, with corresponding, representative comments. Codes are not mutually exclusive, so comments may be tagged with more than one code.

Benefits & Coverage

More than one-quarter of the comments regarding confusion about benefits and coverage indicated respondents were uncertain of the benefits and services (27.9%, n = 38) that are covered under their health insurance plan, such as:

“I was unsure whether my insurance would cover a birth control implant. I am also unsure how my insurance covers mental health professionals because I live out of state.” (P66)

Several comments (9.6%, n = 13) reflected difficulty understanding how to locate an in-network provider, such as:

“I do not know what type of doctors or hospitals my insurance network covers, or the fees associated with each health care provider.” (P73)

Finally, some comments reflected providers’ inability to discuss health insurance plans with patients (e.g., “...There’s a lot going on with health insurance and I don’t think providers have a good handle on it; i.e. Don’t know how to explain it to their patients.” [P402]), trouble understanding the referral process, and coverage while traveling.

Cost-Sharing

Approximately one-quarter of comments indicated that the respondent was uncertain of their financial responsibility (25.7%, n = 35) either before or after seeing a provider (e.g., “I sometimes have a hard time knowing what I have to pay for when I go to the doctor” [P376])).

Approximately 15 percent (15.4%, n = 21) of comments focused on difficulty understanding the terminology or order of cost-sharing, such as:

“I do not completely understand the difference between things like co-insurance, co-pay, out-of-pocket maximum, etc. and I am especially confused when it comes to when these things apply (before or after I hit my deductible). This creates a problem for me because I never know how much medical care might cost when I seek it out, and have often been surprised by bills that come in the mail a few weeks later that I did not expect to receive.” (P11).

Finally, several comments reflected that respondents were not utilizing needed services due to a lack of understanding, such as:

“I've also been delayed in getting prescriptions due to a lack of understanding of my insurance.”
(P370)

Selection of Health Insurance Plan

One-fifth of the comments focused on difficulty comparing and selecting health insurance plans. Some of the comments focused on specific experiences of selecting coverage or being apprehensive when selecting future coverage, such as:

“When trying to decide on a plan for my fiancé we were very confused. initially we had him on a "catastrophic" plan but I have no idea how much we would have ended up paying had something truly catastrophic happened to him. Insurance makes me feel totally lost.” (P277)

“I haven't had to select plans myself, but in a few years when I do, I do not feel like I would be able to understand what the difference between all the different payment types are (like in the scenarios presented here). I would be confused as to what I would end up paying myself on a given plan.” (P400)

Comments also reflected extensive use of “jargon” in health insurance plans decreasing understanding, such as:

“Insurance plans and contracts are very long and even for someone studying law there is a lot of detail in these docs. Can be very confusing to understand what is ultimately covered (i.e. the rules of the contract) and what is still debatable (i.e. Standards or ambiguities in the contract) ...” (P402)

Some comments reflected deferred or shared decision making (e.g., asking a parent to explain or help make the decision for them) and lack of formal education, such as:

“I had to purchase private insurance between going off my parent’s plan and joining the university insurance plan after I turned 26. Trying to figure out what the best option was for me for the few months was daunting, and would have been very challenging without my parents help since I haven't been formally "taught" anything about insurance in school, etc.” (P430)

COMMENT

College students are a unique population in the health insurance system. In comparison to the general population, students are a relatively healthy population, may have family insurance options under the protections provided in the Affordable Care Act (ACA) (most notably allowing young adults to remain on their parents’ health insurance plans until the age of 26), and may have SHIPs designed for their specific needs. This may lead to deferred or shared decision making regarding health insurance

while attending college. However, without formal education on health insurance, college students may have limited practical understanding of financial responsibility, ability to translate their health insurance benefits, or select a health insurance plan that matches their health care needs, despite ability to identify commonly used terms in a multiple choice survey, as demonstrated in this questionnaire. The fact that the scores were higher for those who pay their own premiums suggests that individuals who obtain their own coverage may be more invested in sufficiently understanding related terminology.

The combined impact of policy changes implemented by the ACA, growing utilization of consumer-directed health plans, and uncertainty of future health policy changes has created ambiguity in how colleges and universities should consider their students' health needs going forward. This issue may be particularly worrisome given that many schools are contemplating eliminating health insurance subsidies for graduate students or eliminating university SHIPs altogether^{17,18}. Further, as health policy reforms continue, some schools have made the decision of ending their student insurance plans, putting larger numbers of students onto the health insurance exchanges for the first time. With an expansive array of options for health insurance coverage and potentially limited practical experience with health insurance, students may find themselves in the precarious dilemma of selecting appropriate health insurance coverage that fits their needs during college or shortly after graduation without instruction on terminology or decision-making strategies.

With the growing number of options available for students seeking medical care (e.g., student health centers, local primary care clinics, urgent care facilities, and emergency departments), an improved understanding of health insurance would help in determining where to pursue the most cost-effective health care. Many colleges and universities, for example, have student health centers that provide primary care and mental health services that are integrated with the university SHIP to provide cost-effective care¹⁹. However, respondents continually noted confusion about what services, both inside and outside of the student health center, were covered under their insurance plan.

Available tools, including the TOFHLA that has been considered as the “gold standard” of the health literacy measurement, and newer tools, such as Newest Vital Sign and Medical Data Interpretation Test, primarily test for comprehension at basic readability levels which may be ineffective for judging health literacy in college populations¹⁵. College students perform relatively well on these tests, leading to a potentially erroneous conclusion that their health literacy translates into better health outcomes or understanding of health insurance. While many people, not just young adults, have trouble with health insurance terms⁶, the existing research on college students may mask students’ practical health insurance literacy from university administrators and researchers.

The results from this study highlight that although students can correctly recognize some of the most commonly encountered terms, measuring as functionally health literate, they encounter difficulty when asked to select health insurance, translate a health insurance plan, and determine financial responsibility, indicating limited practical health insurance literacy. Respondents also had low levels of perceived self-understanding following the survey, potentially indicating lowered confidence after confronted with a wide array of health insurance terminology, and almost 25% of respondents linked their confusion regarding their health insurance to delaying or forgone medical care. In addition, the decrease in self-rated understanding of vocabulary after completing the questionnaire underscores that many individuals may not self-assess their abilities accurately without also being tested on their abilities.

Altogether, policy makers, university administration, and public health researchers and practitioners must all work collaboratively to address the needs of the overlooked student demographic in health insurance literacy research. Particularly as health care policy shifts and colleges and universities continue to alter benefits or consider dropping SHIPs all together, materials and instructional efforts designed to educate the student population on insurance need to be formulated and integrated with the existing health education programs. For example, the University of Maryland

launched a Health Insurance Literacy Initiative to develop research-based health insurance literacy programs²⁰. The literature review performed by this interdisciplinary team revealed no existing, comprehensive health insurance literacy program to help choose health insurance. Subsequently, their team developed a program called “Smart Choice Health Insurance” that provides a framework for further development of such educational programs on college campuses²¹. By allowing a perceived literate demographic to be excluded from the health insurance literacy discussion, college students may be unprepared to enter the insurance marketplace, leading to poor plan choices, ineffectively used benefits, and, ultimately, higher costs for all.

Limitations

This study has several limitations to note. Because of the recruitment methods, respondents represented a variety of student standings and enrollment at schools across the university. Despite broad representation, demographics for gender and student standing differed from university demographics. Recruitment was limited to students enrolled at one university and, therefore, results may not be generalizable to other universities or nationally. Future research of this type on differing populations is recommended to validate our findings. Some of the respondents may have only responded for the incentive. An effort was made to exclude these respondents by eliminating the six respondents who did not respond to all questions. Another limitation is the lack of test-retest of the questionnaire, thereby the consistency and reliability of the questionnaire cannot be determined. However, the content of each question item was developed then pre-tested with intensive input from students via focus group discussions to ensure that the questionnaire was able to best capture the students’ common languages and concerns with regards to health insurance literacy.

Conclusions

To the best of the authors' knowledge, this study is the first ever attempt to assess college students' understanding of health insurance and ability to navigate coverage. Although college students are considered a highly literate and numerate population, our results show that students are woefully unprepared to select, understand, and utilize health insurance plans. Although health care policy may shift in the coming years, fundamental plan terminology and verbiage for health insurance plans likely will not. It is imperative that universities enrolling students recognize the deficiency of students' knowledge of health care, medical costs, and health insurance. This study identifies deficits in students' health insurance comprehension. The results of research such as this could help guide both the design of SHIP benefits and creation of materials and instructional efforts focused on health insurance literacy education.

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APPENDIX A: Questionnaire

Demographics

1. What is your current standing at the university?
 - Undergraduate – 1st year
 - Undergraduate – 2nd year

- Undergraduate – 3rd year
- Undergraduate – 4th year or beyond (this includes a 5th year accelerated master program)
- Post-undergraduate

2. What School are you enrolled in at the university?

- School of A
- School of B
- School of C
- School of D
- School of E
- School of F
- School of G
- School of H
- School of I
- School of J
- School of K

3. Are you a domestic or international student?

- Domestic
- International

4. How old are you?

_____ years old

5. How do you describe your gender?

- Female
 - Male
 - Other
6. Is your primary health insurance plan the XXX Student Health Insurance Plan offered through the university?
- Yes, the XXX Student Health Insurance Plan is my primary health insurance plan.
 - No, I have a different health insurance plan.
7. Who pays the premium for your health insurance plan?
- I am a graduate student and the department provides a subsidy for the premium.
 - I have a scholarship that pays for the premium.
 - I pay the premium.
 - A family member pays for the premium.
 - Other

Perceived Understanding

1. Please self-rate your understanding of health insurance terminology. That is, how well do you feel you understand the terminology used in your health insurance plan?
- Very poor
 - Poor
 - Fair
 - Good
 - Very good

Health Insurance Literacy

1. _____ drugs are prescription or over the counter drugs sold by a drug company under a specific name or trademark and that is protected by a patent.
 - Generic
 - Brand name
 - Formulary
 - Referral

2. _____ drugs are prescription or over the counter drug that has the same active-ingredient formula as a brand-name drug.
 - Generic
 - Brand name
 - Formulary
 - Referral

3. This is the health care items or services covered under a health insurance plan. Covered _____ and excluded services are defined in the health insurance plan's coverage documents.
 - Qualifying health coverage
 - Continuation health coverage (COBRA)
 - Insurance co-op
 - Benefits

4. A _____ is approval from a health plan that may be required before you get a service or fill a prescription in order for the service or prescription to be covered by your plan.
 - Prior authorization
 - Premium

- Coordination of benefits
 - Referral
5. The _____ is the amount you pay for covered health care services before your insurance plan starts to pay.
- Coinsurance
 - Premium
 - Deductible
 - Out-of-pocket maximum
6. A _____ is the facilities, providers and suppliers your health insurer or plan has contracted with to provide health care services.
- Formulary
 - Network
 - Referral
 - Health insurance marketplace
7. The _____ is the percentage of costs of a covered health care service you pay (20%, for example) after you've paid your deductible.
- Coinsurance
 - Premium
 - Copay
 - Out-of-pocket maximum
8. A _____ allows you to set aside money on a pre-tax basis to pay for qualified medical expenses if you have a "high deductible" health insurance plan.
- Health reimbursement account (HRA)

- Health savings account (HSA)
 - Employer shared responsibility payment (ESRP)
 - Flexible spending account (FSA)
9. The _____ is a legally required standardized document that insurance must provide to let you make apples-to-apples comparisons of costs and coverage between health plans.
- Formulary
 - Coordination of benefits
 - Referral
 - Summary of Benefits and Coverage (SBC)
10. A _____ is a fixed amount (\$20, for example) that you pay for a covered health care service after you've paid your deductible.
- Coinsurance
 - Premium
 - Copay
 - Out-of-pocket maximum
11. The _____ is the amount you pay for your health insurance every month. In addition to it, you usually have to pay other costs for your health care, including a deductible, copayments, and coinsurance.
- Premium
 - Claim
 - Referral
 - Formulary
12. A _____ is an arrangement you set up through your employer to pay for many of your out-of-pocket medical expenses with tax-free dollars. These expenses include insurance

copayments and deductibles, and qualified prescription drugs, insulin and medical devices. You decide how much of your pre-tax wages are taken out of your paycheck and put towards this.

- Health reimbursement account (HRA)
- Health savings account (HSA)
- Employer shared responsibility payment (ESRP)
- Flexible spending account (FSA)

13. A _____ is a type of health insurance plan that usually limits coverage to care from doctors who work for or contract with the insurance company. It generally won't cover out-of-network care except in an emergency.

- Point of service (POS)
- Preferred provider organization (PPO)
- Health maintenance organization (HMO)
- Continuation health coverage (COBRA)

14. A _____ is a type of health plan that contracts with medical providers, such as hospitals and doctors, to create a network of participating providers. You pay less if you use providers that belong to the plan's network. You can use doctors, hospitals, and providers outside of the network for an additional cost.

- Point of service (POS)
- Preferred provider organization (PPO)
- Health maintenance organization (HMO)
- Continuation health coverage (COBRA)

15. A _____ is a list of prescription drugs covered by a prescription drug plan or another insurance plan offering prescription drug benefits. This is also called a drug list.

- Network
- Referral
- Formulary
- Summary of benefits and coverage (SBC)

16. The _____ is a cap on the benefits, in terms of a dollar amount of covered services or the number of visits for a particular service, that your insurance company will pay in a year while

you're enrolled in a particular health insurance plan. These caps are sometimes placed on particular services such as prescriptions or hospitalizations. After this is reached, you must pay all associated health care costs for the rest of the year.

- Out-of-pocket maximum
- Deductible
- Premium
- Annual limit

17. _____ are employer-funded and owned group health plans from which employees are reimbursed (tax-free) for qualified medical expenses up to a fixed dollar amount per year. Unused amounts may be rolled over to be used in subsequent years.

- Health reimbursement accounts (HRA)
- Health savings accounts (HSA)
- Employer shared responsibility payment (ESRP)
- Flexible spending accounts (FSA)

18. The _____ is the most you have to pay for covered services in a plan year. After you spend this amount on deductibles, copayments, and coinsurance, your health plan pays 100% of the costs of covered benefits

- Out-of-pocket maximum
- Annual limit
- Coinsurance
- Premium

19. A _____ is a written order from your primary care doctor for you to see a specialist or get certain medical services. If you don't get this first, the plan may not pay for the services.

- Referral
- Prior authorization
- Coordination of benefits
- Claim

20. The _____ is the expense for medical care that isn't reimbursed by insurance. These expenses include deductibles, coinsurance, copayments for covered services, and any expenses for medical care that aren't covered by your insurance.

- Out-of-pocket maximum
- Annual limit
- Premium
- Out-of-pocket cost

Phase II Scenarios

1. Your insurance company has negotiated a rate of \$11,000 for a surgery. You have a deductible of \$1,000, co-insurance of 20%, and out-of-pocket maximum of \$4,000. What amount are you responsible for?

- \$4,000
- \$3,000
- \$2,200
- \$1,000

2. Your insurance company has negotiated a rate of \$100 for an office visit with your primary care provider. You have already paid your deductible for the year, your copayment is \$20 and your coinsurance is 10%. What amount are you responsible for?

- \$30
- \$28
- \$20

- \$10

Repeat Perceived Understanding

1. Please self-rate your understanding of health insurance terminology. That is, how well do you feel you understand the terminology used in your health insurance plan?
 - Very poor
 - Poor
 - Fair
 - Good
 - Very good

Feedback for Confusion

1. Has there been a time when you were confused about using your health insurance or picking out a health insurance plan?
 - Yes
 - No

If yes, can you briefly (1-3 sentences) describe without using personally identifying information?

2. Has a lack of understanding of your health insurance plan ever stopped you or significantly delayed you from seeking medical care?
 - Yes
 - No

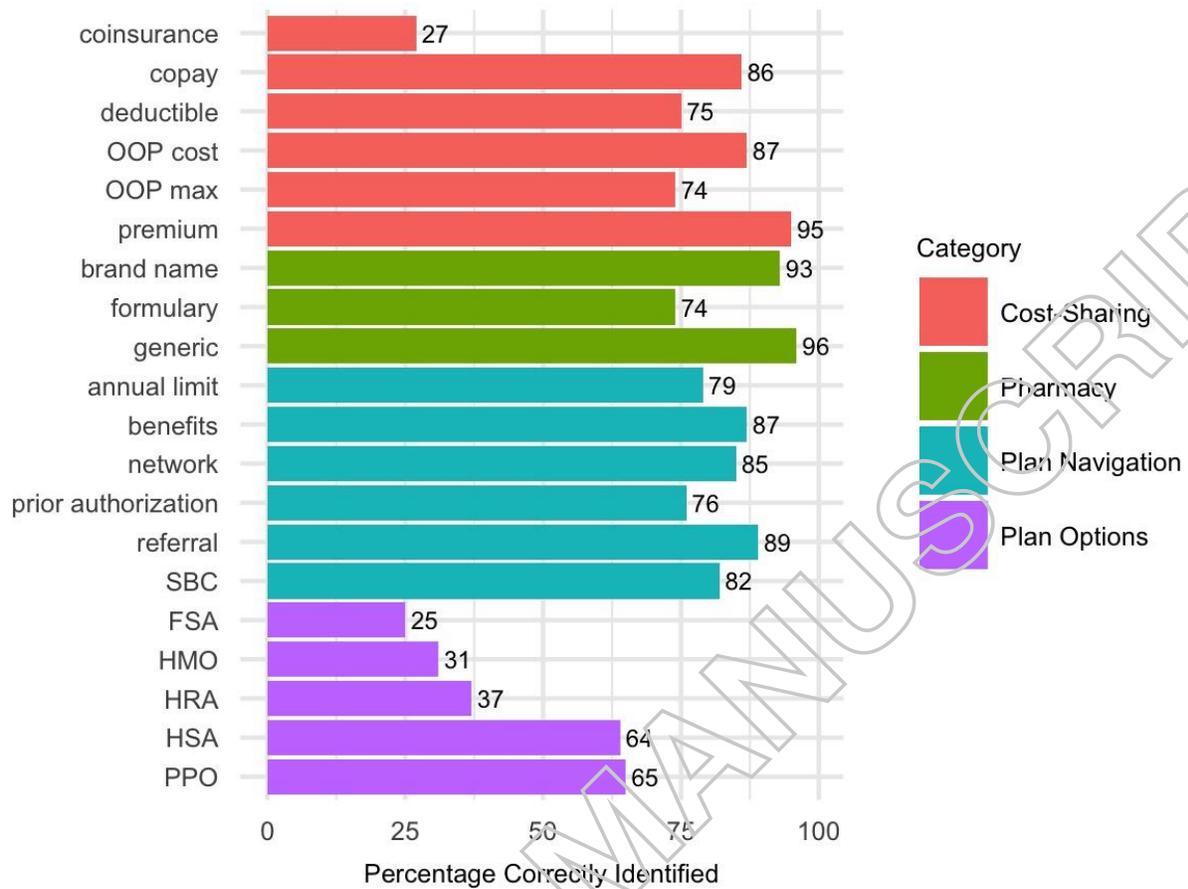


Figure 1. Percentage of respondents who correctly identified the vocabulary term (n = 455). SBC = summary of benefits and coverage, FSA = flexible spending account, HMO = health maintenance organization, OOP = out-of-pocket, HRA = health reimbursement account, HSA = health savings account, PPO = preferred provider organization.

Table 1

Scenarios, options presented for solutions, and students' answers for the financial responsibility questions

No.	Scenario	Options	Pathway	n (%)
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1	Your insurance company has negotiated a rate of \$11,000 for a surgery. You have a deductible of \$1,000, coinsurance of 20%, and OOP maximum of \$4,000. What amount are you responsible for?	\$4,000	OOP max	112 (24.6)
		\$3,000	Deductible then coinsurance	173 (38.0)
		\$2,200	Coinsurance then deductible	129 (28.4)
		\$1,000	Deductible only	41 (9.0)
2	Your insurance company has negotiated a rate of \$100 for an office visit with your primary care provider. You have already paid your deductible for the year, your copayment is \$20 and your coinsurance is 10%. What amount are you responsible for?	\$30	Coinsurance then copay	166 (36.5)
		\$28	Copay then coinsurance	86 (18.9)
		\$20	Copay only	175 (38.5)
		\$10	Coinsurance only	28 (6.1)

Bold indicates the correct answer.

Table 2

Demographics of respondents (n = 455)

Demographics	n (%)
Age	
17-20	181 (39.8)
21-25	184 (40.5)
26-30	82 (18.0)
31-35	7 (1.5)
41	1 (0.2)
Gender	
Female	312 (68.6)

Male	143 (31.4)
Insurance	
Other	324 (71.2)
Student health insurance plan	131 (28.8)
Payer of Premium	
Family	329 (72.3)
Graduate student subsidy	35 (7.7)
Scholarship	20 (4.4)
Self-paid	64 (14.1)
Unsure	7 (1.5)
School of Enrollment	
Arts, Commerce, Education, Policy, & Science	251 (55.2)
Business & Law	78 (17.1)
Engineering	38 (8.35)
Medicine & Nursing	88 (19.3)
Student Standing	
Undergraduate (1 st year)	74 (16.2)
Undergraduate (2 nd year)	57 (12.5)
Undergraduate (3 rd year)	64 (14.1)
Undergraduate (4 th year or beyond)	54 (11.9)
Postgraduate	206 (45.3)
Residency Status	
Domestic	440 (96.7)
International	15 (3.3)

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Table 3

Group differences in scores of vocabulary knowledge based on demographics

Demographics	n (%)	Median Score	W	p	r
Gender					
Female	312 (68.6)	70	18430	0.0027	-0.14
Male	143 (31.4)	75			
Insurance					
Other	324 (71.2)	70	13052	9.38e-11	-0.30
Student health insurance plan	131 (28.8)	80			
Payer of Premium					
Self-paid	64 (14.1)	85	6061	2.738e-11	-0.31
Not self-paid	391 (85.9)	70			
Residency Status					
Domestic	440 (96.7)	75	--	--	--
International	15 (3.3)	75			
Student Standing					
Undergraduate	249 (54.7)	65	41866	< 2.2e-16	-0.55
Postgraduate	206 (45.3)	80			
Undergraduate Year					
Underclassmen	131 (52.6)	60	5603	0.0002	-0.24
Upperclassmen	118 (47.4)	70			

W = Wilcoxon rank-sum test statistic

p = p-value

r = effect size

Table 4

Self-rated understanding of respondents' vocabulary knowledge before and after the questionnaire (n = 455)

		After				
		Very Good	Good	Fair	Poor	Very Poor
Before	Very Good	8	8	2	1	1
	Good	1	18	26	13	2
	Fair	0	7	102	78	23
	Poor	0	1	13	78	42
	Very Poor	0	0	1	6	24

Values above reflect the number of respondents.

Table 5

Prevalence of themes and codes in comments

Themes/Codes	Example	Frequency n (%)
Benefits & Coverage		58 (42.6)
Uncertain of benefits & services included in plan	"My family has a flexible spending account but I don't know what it covers and what it doesn't and so I usually buy everything out of pocket to avoid confusion and reimbursement"	38 (27.9)
Locating in-network providers	"It can be hard to understand what is included in "preventative care" that is provided free even if there is a deductible. Also, I did not realize hospitals were "in" or "out" of network and had a significant bill because I went to an out of network. Then, the next time I needed to go to a hospital, I had to wait on the phone in significant pain to figure out where I could go that would be in-network."	13 (9.6)
Difficulty understanding or navigating referrals	"It's unclear when you need a referral for a specialist."	5 (3.7)
Provider unable to discuss plan	"I am often confused about how much I will have to pay for a doctor visit before I am given the service. Often doctor's offices themselves have no idea."	4 (2.9)
Coverage when traveling	"Trying to figure out which health care providers I could use or how I could pick up medication when going on extended trips without access to a pharmacy."	3 (2.2)
Cost-Sharing		49 (36.0)
Uncertain of financial responsibility	"I had an ER visit and was under the impression that I would just have to pay a deductible/copay, when really I was still responsible for 20 percent of the total costs after the deductible."	35 (25.7)
Uncertain of cost-sharing	"Not sure whether coinsurance amount if after	21 (15.4)

terminology and order	deductible is already taken or before.”	
Unable to reconcile incorrect billing	“My old health insurance company refused to pay for a covered medical procedure after the fact, claimed to have negotiated a settlement with the provider, but the provider still claimed I was responsible for the balance, to the point that they sent it to collections.”	3 (2.2)
Selecting Health Insurance		28 (20.6)
Difficulty comparing and selecting a plan	“I had to pick policies through healthcare.gov and felt thoroughly uneducated on my options and what I was buying/what I needed. I had to ask for help.”	28 (20.6)
Experience & Confidence		18 (13.2)
Deferred or shared decision making	“I honestly don't know much about health insurance like I thought I did. I usually just let my dad take care of it.”	16 (11.8)
Limited experience or confidence	“I had to pick policies through healthcare.gov and felt thoroughly uneducated on my options and what I was buying/what I needed. I had to ask for help.”	10 (7.4)
Confusing Documentation		15 (11.0)
Health Insurance	“It is extremely difficult to navigate all of the benefits and payments, also insurance providers rarely have an easy to read chart of benefits.”	12 (8.8)
Bills from provider	“I usually have confusion when I get the bill because services are not labeled specifically”	5 (3.7)
Prescriptions		15 (11.0)
Unsure of cost-sharing or coverage	“How formulary work; who/how to find out if a drug requires prior authorization; needing to call to ask why a certain prescription costs X amount of money (since physicians are often unaware of pricing and insurance coverage)”	15 (11.0)
Misunderstanding		4 (2.9)
Discusses incorrect or false information	“I can't understand any of the jargon, and I suspect that doctors issue unnecessary referrals to specialists in order to increase profits.”	4 (2.9)

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