

Agency Mission: To assure the citizens of Kansas safe and competent practice by nurses and mental health technicians.

**Kansas State Board of Nursing
Investigative Committee Agenda
June 27, 2022**

NOTE: The meeting will be held via Zoom. Link to access meeting to follow agenda.

Time: 9:00 a.m. – Until Finished

Committee Members: Rebecca Sander, MSN, RN – Chair
Adri Gouldsmith, LPN, V. Chair
Jade Ramsdell, MBA, Public Member

Staff: Linda Davies, BSN, RN, Practice Specialist
Jill Simons, Executive Assistant

- I. Call to Order
- II. Review of On-Site packets
- III. Additions/Revisions to the agenda
- IV. Announcements
- V. Approval of minutes –March 28, 2022
- VI. Unfinished Business
 - a. K.A.R. 60-7-106 – Unprofessional Conduct (LMHT)
- VII. New Business
 - 1. KNAP 1st Quarter Report, 2022
 - 2. Update on Investigative Committee Meeting Changes
 - 3. NCSBN Substance Use Disorder Monitoring Program Study
- VIII. Quasi-Judicial
- IX. Agenda for September 2022 Committee meeting
- X. Adjourn

Please Note: Additional items, which have come to the attention of the Board or Committee, will be handled as time permits. Agenda is subject to change based upon items to come before the Board. Handouts or copies of materials brought to the board or committees for discussion by committee members or visitors must be submitted to staff 30 calendar days prior to start of the meeting. Any items received after the 30th calendar day may be addressed at the meeting at the discretion of the President of the Board or chairperson of the committee.

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/88431210974?pwd=cTE3Z2hoVXR4ZUZINiFJTllocWE2UT09>

Passcode: KsbnINVCom

Or One tap mobile :

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Kansas Administrative Regulations

60-7-106. Unprofessional conduct. Any of the following shall constitute "unprofessional conduct":

- (a) Performing acts beyond the authorized scope of mental health technician practice for which the individual is licensed;
- (b) assuming duties and responsibilities within the practice of mental health technology without adequate preparation or without maintaining competency;
- (c) failing to take appropriate action or to follow policies and procedures in the practice situation designed to safeguard the patient;
- (d) inaccurately recording, falsifying, or altering any record of a patient, an agency, or the board;
- (e) physical abuse, which shall be defined as any act or failure to act performed intentionally or carelessly that causes or is likely to cause harm to a patient. This term may include any of the following:
 - (1) The unreasonable use of any physical restraints, isolation, or medication that harms or is likely to harm a patient;
 - (2) the unreasonable use of any physical or chemical restraint, medication, or isolation as a punishment, for convenience, in conflict with a physician's order or a policy and procedure of the facility or a statute or regulation, or as a substitute for treatment, unless the use of the restraint, medication, or isolation is in furtherance of the health and safety of the patient;
 - (3) any threat, menacing conduct, or other nontherapeutic or inappropriate action that results in or might reasonably be expected to result in a patient's unnecessary fear or emotional or mental distress; or
 - (4) any failure or omission to provide any goods or services that are reasonably necessary to ensure safety and well-being and to avoid physical or mental harm;
- (f) the commission of any act of sexual abuse, sexual misconduct, or sexual exploitation related to the licensee's practice;
- (g) verbal abuse, which shall be defined as any word or phrase spoken inappropriately to or in the presence of a patient that results in or might reasonably be expected to result in the patient's unnecessary fear, emotional distress, or mental distress;
- (h) delegating any activity that requires the unique skill and substantial specialized knowledge derived from the biological, physical, and behavioral sciences and judgment of the mental health technician to an unlicensed individual in violation of the mental health technician's licensure act or to the detriment of patient safety;
- (i) assigning the practice of mental health technology to a licensed individual in violation of the mental health technician's licensure act or to the detriment of patient safety;
- (j) violating the confidentiality of information or knowledge concerning any patient;
- (k) willfully or negligently failing to take appropriate action to safeguard a patient or the public from incompetent practice performed by a licensed mental health technician. "Appropriate action" may include reporting to the board of nursing;
- (l) leaving an assignment that has been accepted, without notifying the appropriate authority and without allowing reasonable time for the licensee's replacement;
- (m) engaging in conduct related to mental health technology practice that is likely to deceive, defraud, or harm the public;
- (n) diverting drugs, supplies, or property of any patient or agency or violating any law or regulation relating to controlled substances;

- (o) exploitation, which shall be defined as misappropriating a patient's property or taking unfair advantage of a patient's physical or financial resources for the licensee's or another individual's personal or financial advantage by the use of undue influence, coercion, harassment, duress, deception, false pretense, or false representation;
 - (p) solicitation of professional patronage through the use of fraudulent or false advertisements, or profiting by the acts of those representing themselves to be agents of the licensee;
 - (q) failing to comply with any disciplinary order of the board;
 - (r) if the licensee is participating in an impaired provider program approved by the board, failing to complete the requirements of the program;
 - (s) failing to submit to a mental or physical examination or an alcohol or drug screen, or any combination of these, when so ordered by the board pursuant to K.S.A. 65-4924 and amendments thereto, that the individual is unable to practice mental health technology with reasonable skill and safety by reason of a physical or mental disability or condition, loss of motor skills or the use of alcohol, drugs, or controlled substances, or any combination of these;
 - (t) failing to furnish the board of nursing, or its investigators or representatives, with any information legally requested by the board of nursing;
 - (u) engaging in mental health technology practice while using a false or assumed name or while impersonating another person licensed by the board;
 - (v) practicing without a license or while the individual's license has lapsed;
 - (w) allowing another person to use the licensee's license to practice mental health technology;
 - (x) knowingly aiding or abetting another in any act that is a violation of any health care licensing act;
 - (y) having a mental health technician license from a licensing authority of another state, agency of the United States government, territory of the United States, or country denied, revoked, limited, or suspended or being subject to any other disciplinary action. A certified copy of the record or order of denial, suspension, limitation, revocation, or any other disciplinary action issued by the licensing authority of another state, agency of the United States government, territory of the United States, or country shall constitute prima facie evidence of such a fact;
 - (z) failing to report to the board of nursing any adverse action taken against the licensee by another state or licensing jurisdiction, a peer review body, a health care facility, a professional association or society, a governmental agency, a law enforcement agency, or a court for acts or conduct similar to acts or conduct that would constitute grounds for disciplinary action under this regulation; or
 - (aa) cheating on or attempting to subvert the validity of the examination for a license.
- (Authorized by K.S.A. 65-4203 implementing K.S.A. 2015 Supp. 65-4209; effective, T-88-48, Dec. 16, 1987; effective Sept. 27, 1993; amended Sept. 6, 1994; amended April 20, 2007; amended April 29, 2016.)

Kansas Nurse Assistance Program Statistical Summary

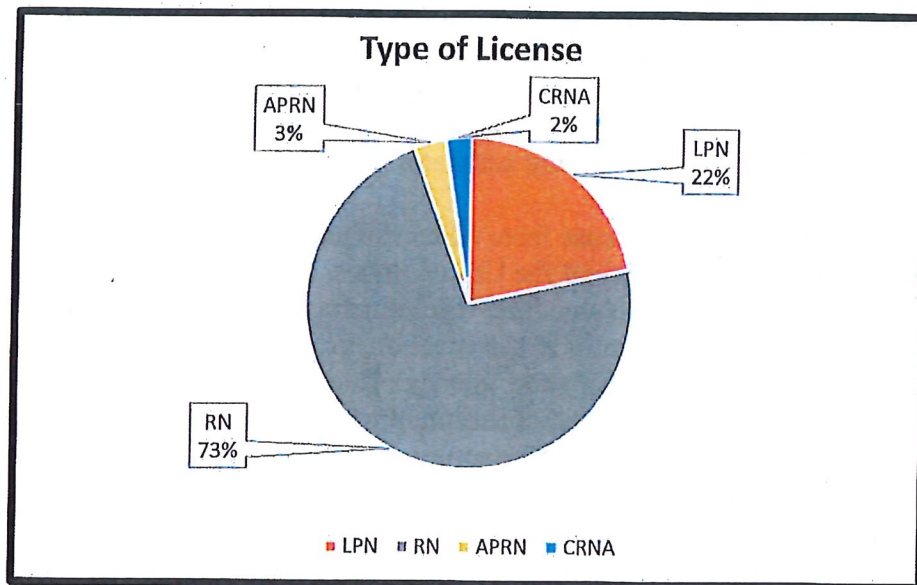
Reporting Period: 01/01/2022-03/31/2022

Active Cases

Total Number in Program: 157

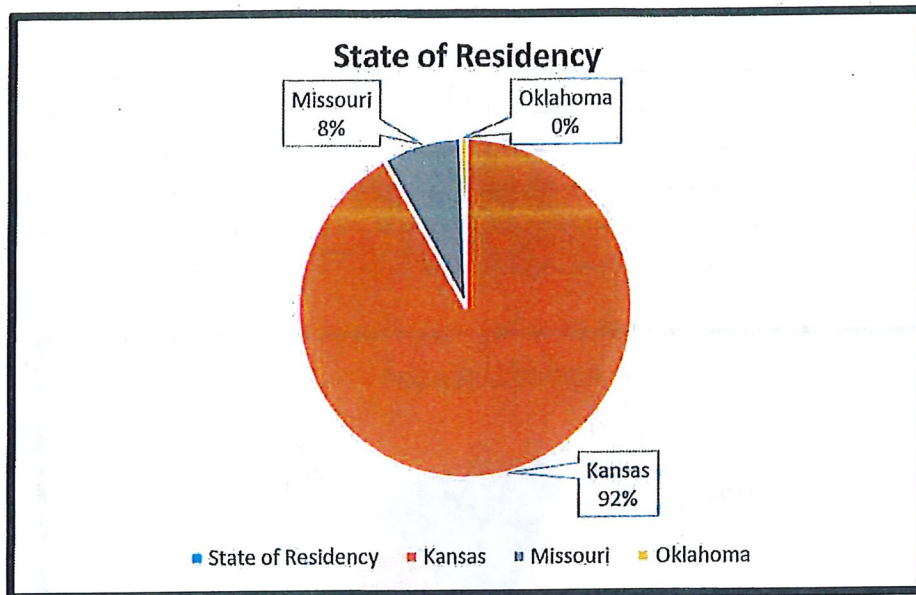
Type of License:

LPN	34
RN	114
APRN	5
CRNA	4



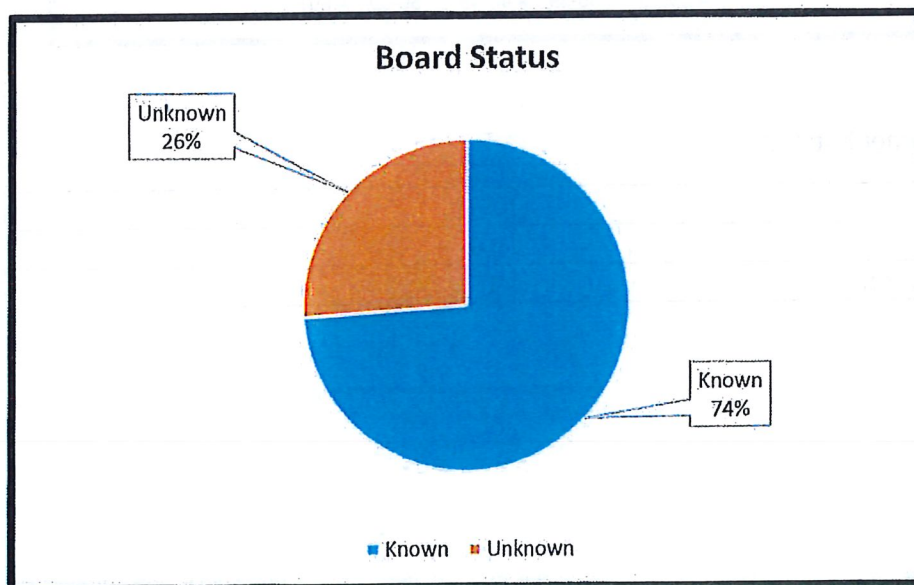
State of Residency:

Kansas	144
Missouri	12
Oklahoma	1



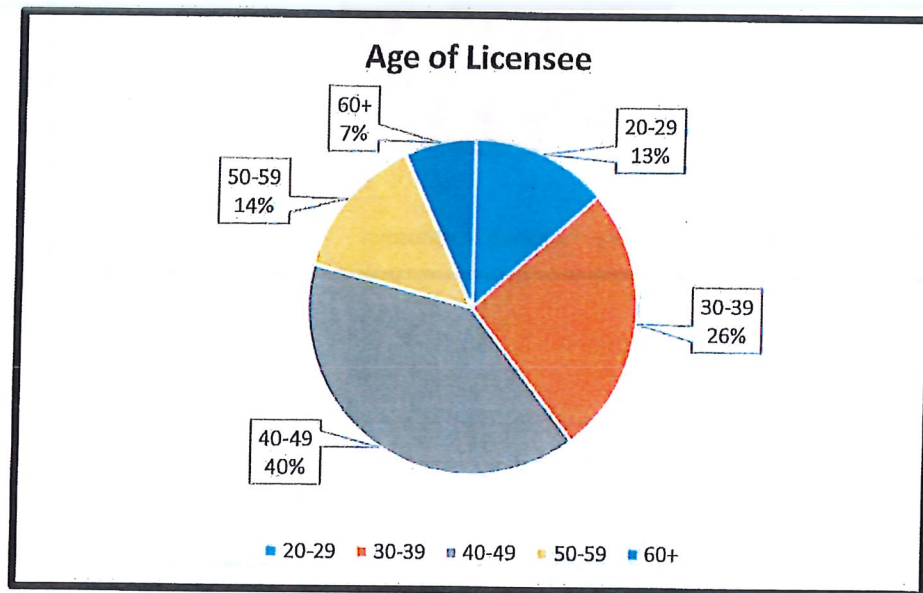
Board Status:

Known	116
Unknown	41



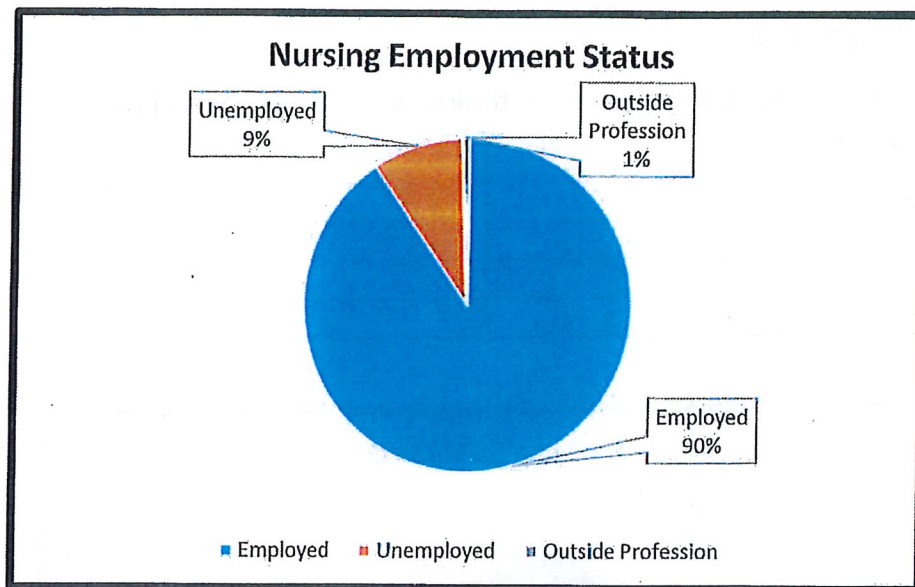
Age:

20-29	21
30-39	41
40-49	62
50-59	22
60+	11



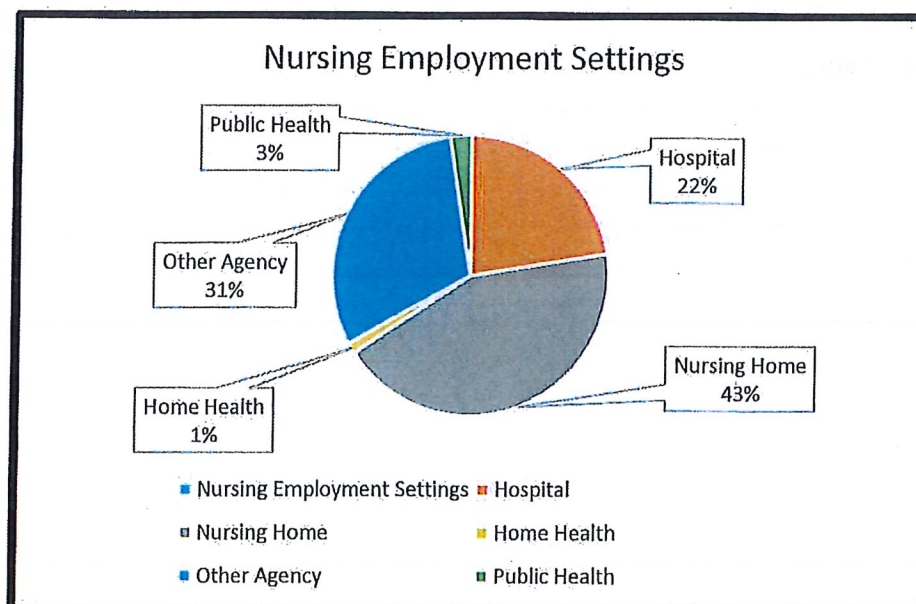
Nursing Employment Status:

Employed	142
Unemployed	14
Outside Profession	1



Nursing Employment Settings:

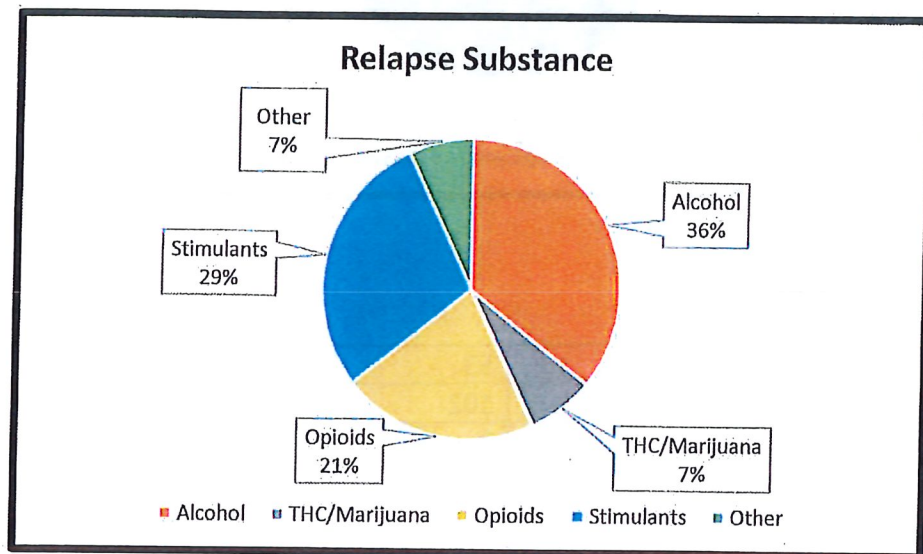
Hospital	53
Nursing Home	102
Home Health	3
Other Agency	72
Public Health	6



Relapses in Program: 13

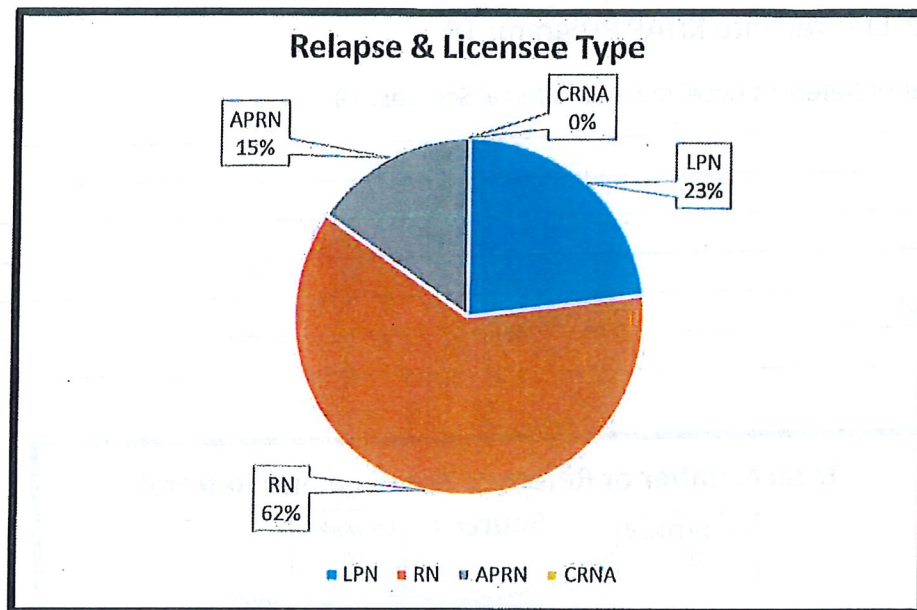
Relapse Substance: (One nurse relapsed on both alcohol & methamphetamine)

Alcohol	5
THC/Marijuana	1
Opioids	3
Stimulants	4
Other	1



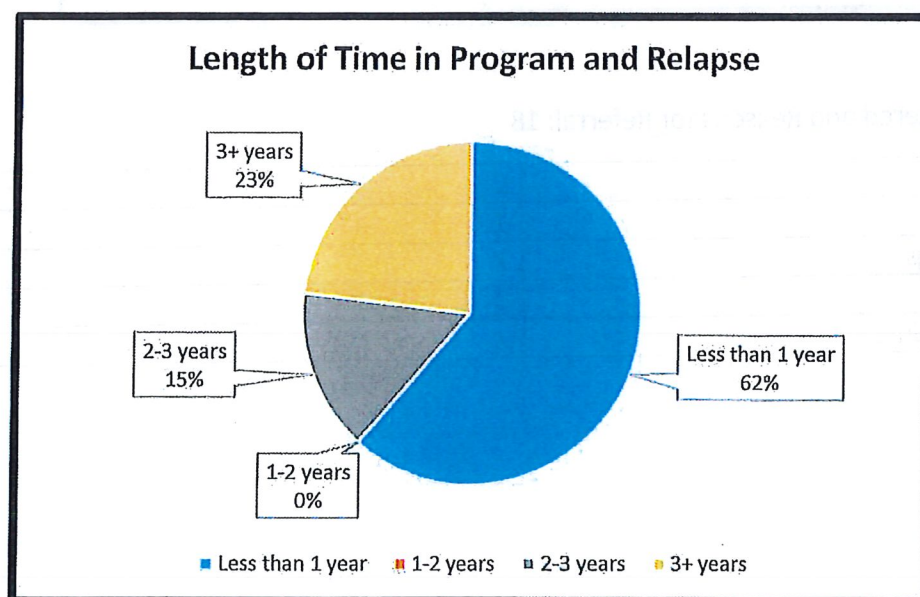
Relapse & Licensee Type:

LPN	3
RN	8
APRN	2
CRNA	0



Length of Time in Program and Relapse:

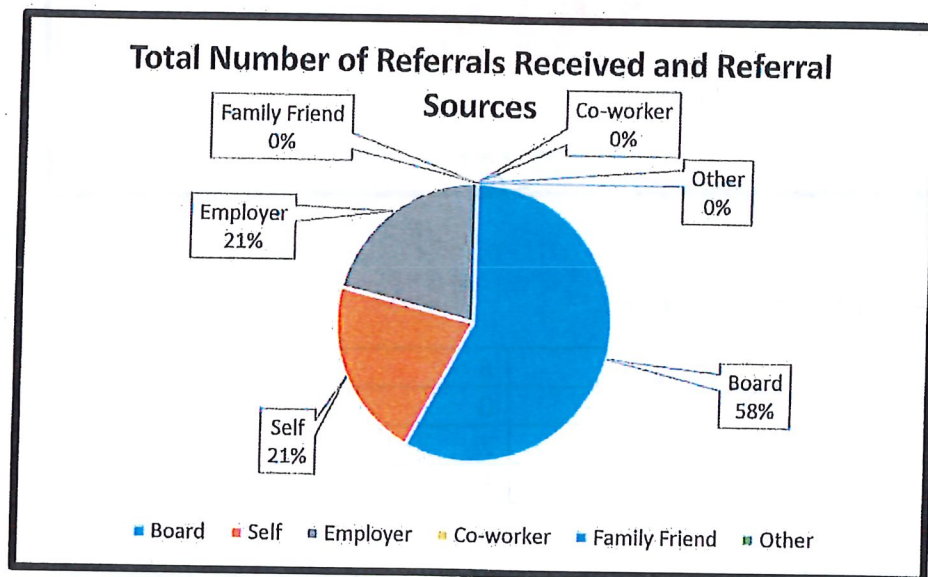
Less than 1 year	8
1-2 years	0
2-3 years	2
3+ years	3



Participants Entered into KNAP Program: 18

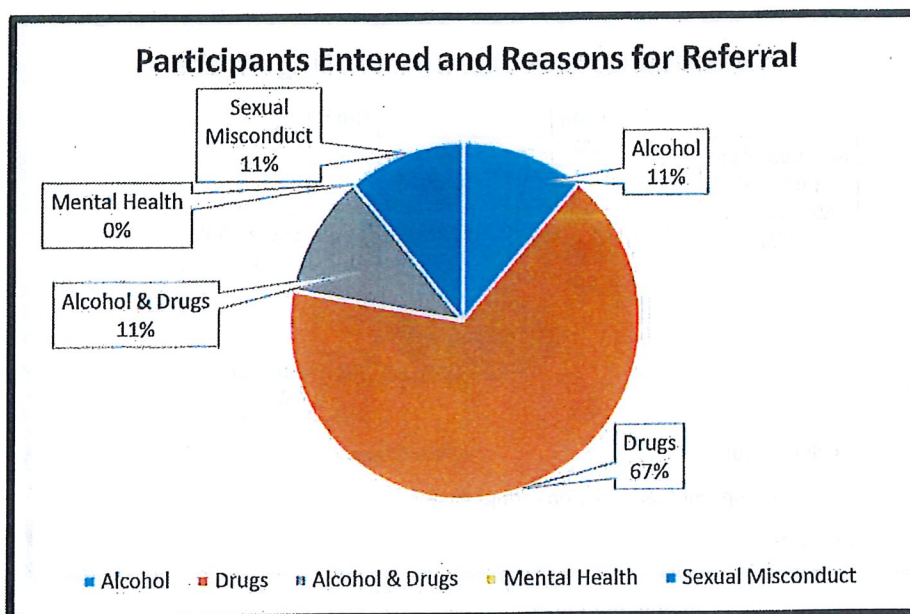
Total Number of Referrals Received and Referral Sources: 19

Board	11
Self	4
Employer	0
Co-worker	4
Family Friend	0
Other	0



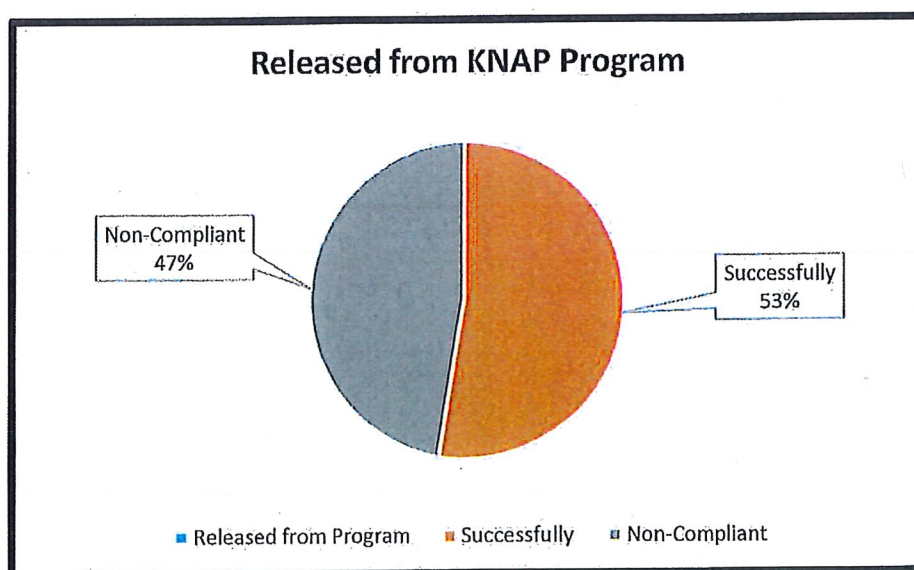
Participants Entered and Reasons for Referral: 18

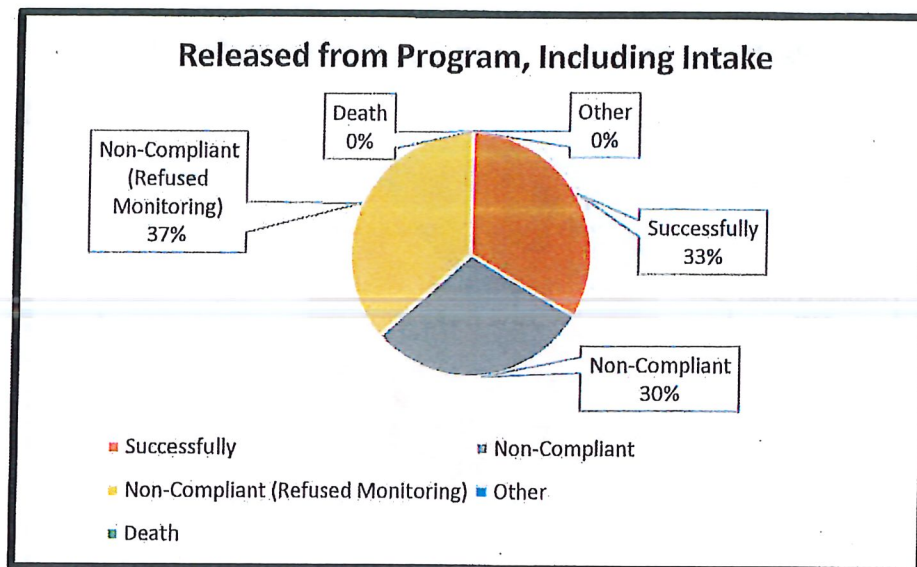
Alcohol	2
Drugs	12
Alcohol & Drugs	2
Mental Health	0
Sexual Misconduct	2



Participants Released from Program: 30

Successfully	10
Non-Compliant	9
Non-compliant (Released in intake, refused monitoring)	11
Other	0
Death	0





Update: Investigative Committee Meeting and Process Changes
June 2022

Goal: Timely review of cases opened to determine discipline

After reviewing the JNR article, *Evaluating the Operational Efficiency of Nursing Regulatory Boards' Discipline Case Management*, to accomplish this, three areas need addressed separately.

What is the priority of the Board?

1. Increase Investigative Committee Meetings to begin meeting monthly by December, 2022
 - a. Considerations
 - i. Facilitating monthly meetings impact on staff
 - ii. Statutory changes in 65-1120(b) to move out of Quasi Judicial?
 - b. Board/Committee membership
 - i. Decide on who needs to be meeting and is it virtual and /or in-person
 - ii. Commitment to the committee
 - c. Timeline
 - i. June
 - i. KNAP presentation
 - ii. September
 - i. Complaint processing / baseline data presentation
 - ii. Board Member assignment
 - iii. Post-September – training of Member
2. Assess Operational efficiency for case investigations (Sept)
 - a. Investigative Case Processing Definitions (see below)
 - b. Data (baseline)
 - a. Caseload per investigator
 - b. No of Case investigation steps
 - c. Days to close case investigation by violation type
 - d. Research literature for processing standards
 - i. Previous NCSBN survey did not reveal consistent case investigation processing times
 - ii. JNR, April 2022:
 1. Caseload per investigator = 60
 2. No of Case Steps = 10
 3. Days to Close (case investigation or case resolution?) = 177 days
 - e. Review internal Policies and Procedures
 - f. Identify gaps in case processing
 - g. Facilitate process improvement initiatives to address gaps
3. Assess Operational efficiency for case resolution through the disciplinary process
 - a. Data (baseline)

Investigative Case Processing Definitions

Date of Incident

- Date the alleged violation occurred.

Date Reported to KSBN

- Date the reporting party submitted the complaint to KSBN

Date Case Opened

- Date Complaint reviewed by Professional Review who indicates Case to be Opened.

Date Case Assigned

- Date assigned to investigator
- Assignment varies based on investigator turnover

Date Case Investigation Completed

- Date Case Summary presented to Investigative Committee and outcome decided.

Date of Case Resolution

- Date when Disciplinary Counsel done with discipline.

As we discussed, the process for case investigation – when we present the baseline data, we will further explain what that means.

Evaluating the Operational Efficiency of Nursing Regulatory Boards' Discipline Case Management

Brendan Martin, PhD, and Nicole Kaminski-Ozturk, PhD

Background: In the United States and across the globe, differences in staffing, operations, terminology, and other critical measures have historically made it difficult for nursing regulatory bodies (NRBs) to create a standardized method for objectively evaluating nurse performance. **Purpose:** To identify indicators of operational efficiency that transcend individual jurisdictions for the disciplinary process. **Methods:** Investigative staff at 10 U.S. NRBs entered detailed de-identified discipline case management information into a secure online database between June 2018 and June 2020. Generalized estimating equation models, receiver operating characteristic curves, and natural language processing techniques were then used to assess the efficiency of case resolution. **Results:** A total of 55 cases from 10 states in various regions of the United States were submitted. Nearly three-quarters of all cases (73%) were resolved, and the median closure time was 177 calendar days. On multivariable analysis, the volume of open caseloads (adjusted OR = 1.12, 95% CI = 1.06, 1.19, $p < .001$), number of case steps (adjusted OR = 1.08, 95% CI = 1.03, 1.13, $p < .001$), and umbrella agency type (adjusted OR = 1.71, 95% CI = 1.06, 2.78, $p = .02$) had the strongest associations with inefficient case resolution. **Conclusion:** To achieve their mandate of ensuring public safety, NRBs must remain agile and utilize evidence-based approaches to manage disciplinary cases. In the United States and internationally, NRBs that efficiently and effectively execute the disciplinary process facilitate the appropriate and safe return to practice of effective nurses.

Keywords: Operational efficiency, right-touch regulation, discipline, evidence-based, regulatory models, nursing regulatory body performance

Worldwide, nursing regulatory bodies (NRBs) monitor the competency of nurses through the regulatory process. In the United States, differences in staffing, operations, terminology, and other critical measures have historically made it difficult for NRBs to create and maintain standardized methods for objectively evaluating nurse performance. This lack of standardization is particularly evident in how discipline cases brought against nurses are managed. With this in mind, the National Council of State Boards of Nursing (NCSBN) spearheaded a longitudinal examination of the relationship between NRBs and case characteristics and the odds of a case being resolved efficiently.

Background

Conducting systematic reviews of NRBs has historically proven difficult due to variations in staffing, operations, terminology, and other critical measures that exist across the United States and internationally (Cutcliffe & Forster, 2010; Benton et al., 2013). To date, researchers have been limited to benchmarking performance for comparative purposes by isolating particular characteristics, such as board structure (Lugo et al., 2010; Benton et al., 2016; Benton & Rajwani, 2017), or by correlating the characteristics of the offending

nurse and the nature of the complaints (Alabama Board of Nursing, 2016). However, the evaluation of NRB performance has taken on added importance in light of revised reporting rules from the U.S. Department of Health and Human Services, effective 2015 (U.S. Department of Health and Human Services, 2018; Russell, 2018), and intensifying public scrutiny of the regulatory process (Benton, 2017a). In response, NRBs have taken steps to ensure the objectivity, consistency, and transparency of their operations, in particular as they relate to how discipline cases brought against nurses are managed (Brennan, 2013; Carter & Kauder, 2016; Benton, 2017b).

Many scholars have long identified the potential for inherent conflict when assessing the practice of professional self-regulation (Brennan, 2013; Oetter & Johansen, 2017; Leslie et al., 2018). These concerns are notably amplified when focusing on health professions and the clear link to issues of public safety. Thus, ongoing efforts to reform the management of discipline cases have resulted in a clearer separation of investigatory procedures and adjudication (Benton, 2017b). It has also led to renewed calls for right-touch regulation and root cause analyses accounting for potential mitigating factors in determining the outcomes of nurse discipline decisions (Brennan, 2013; Worley, 2017). Coupled with these studies is evidence that suggests professional self-regulation can improve con-

sumer access while reducing the cost and improving the quality of care (Lugo et al., 2010).

The myriad of challenges confronting the nursing profession today further support longstanding calls for evidence-based nursing regulation (Spector, 2010). Additional data to support discipline case management could prove especially useful to NRBs given the lack of uniformity across the global regulatory landscape and the propensity of disciplined nurses to reoffend (Dahn et al., 2014). To this end, NCSBN set out to longitudinally examine the process by which U.S.-based NRBs manage discipline cases brought against nurses. In doing so, NCSBN sought to identify a standardized method for objectively evaluating performance by identifying indicators of operational efficiency that transcend individual jurisdictions for the disciplinary process.

Methodology

Sample

Before commencing formal recruitment, this study was granted exempt status by the Western Institutional Review Board. In early 2018, NCSBN extended an invitation to all 59 U.S. NRBs to participate in a survey examining the disciplinary process in each jurisdiction. Those NRBs that expressed interest in joining the longitudinal study were invited to attend one of four scheduled webinars, during which details of the project were introduced and the procedures outlined. More than 30 NRBs attended one of the webinars, and 10 NRBs ultimately volunteered to join the study and connected NCSBN with the appropriate investigative staff for follow-up. The 10 participating states were Oregon, Georgia, Minnesota, Florida, Idaho, North Dakota, Ohio, Texas, Wyoming, and New Mexico.

Data Collection

Investigative staff at each NRB were asked to enter detailed step-by-step information across five disciplinary case categories into an secure online data repository created and hosted by NCSBN between June 2018 and June 2020. The five case categories tracked for this analysis were professional misconduct, impairment/diversion, practice error, criminal, and a random category. To minimize selection bias, participants were instructed to select cases after the June 2018 launch date. Furthermore, investigators were asked to select the first instance of a case after the launch date that aligned with each one of the four fixed categories (e.g., professional misconduct, etc.). After identifying cases for the four fixed cases, for the fifth, or random, case, participants were instructed to select the next case that fit into any of the four fixed case categories. Thus, each board would have two cases for one of the fixed case categories. For modeling, random cases were recoded.

To facilitate ongoing remote data collection, NCSBN utilized Microsoft's Forms functionality within SharePoint to collect baseline board and case information as well as detailed case records. All participants were initially asked to input baseline data on their NRB's disciplinary process, including the number of active cases, number of

active investigators, and any priority rating systems they employed. Most importantly, NRBs were asked to document detailed case records, including the number of steps involved in each case, the associated dates of those steps, broader descriptions as to the nature of the steps taken in the case (excluding personal identifiers), and detailed narrative descriptions regarding all activities. All NRB data collected for this project were then supplemented using information drawn from the Member Board Profiles (NCSBN, 2020). Data elements included the mandated number of board members, number of regular board meetings, agency type, and whether the NRB's power and duties include formal hearings.

Analysis

A descriptive summary of the sample is provided as counts and proportions for categorical variables, whereas continuous variables are expressed as medians and interquartile ranges (IQRs). For the analysis, generalized estimating equation models were used to assess operational efficiency. This approach not only accounted for potential within-NRB correlation but also the longitudinal nature of the study. Operational efficiency, which was the primary dependent variable for the study, was dichotomized and defined post hoc based on the median number of calendar days required to resolve a case across the sample. Thus, operational efficiency was considered achieved when a case was resolved in the median number of days or fewer; operational inefficiency was designated for a case resolved in more than the median number of days. For significant continuous predictors, receiver operating characteristic curves were generated to identify specific cut points at which NRBs could expect to see a drop-off in operational efficiency. For multivariable generalized estimating equation modeling, the QIC and QICu statistics were used to identify the most parsimonious and predictive model (Pan, 2001). All analyses were performed using SAS version 9.4 (Cary, NC), and $p \leq .05$ was considered statistically significant.

An analysis of unstructured data was then conducted utilizing Python version 3.8.5 (Python Software Foundation, Wilmington, DE) and the Natural Language Toolkit (Bird et al., 2009) package. The data were initially pre-processed for topic modeling usage (e.g., all non-letter characters were removed, text was standardized to lowercase, etc.). The text was then tokenized, breaking each record into word-based linguistic units, and used to develop bigram and trigram models that develop new words based on commonly associated words. For example, in the extracted corpus, the words "voluntary" and "surrender" frequently appeared together, so the associated bigram would then be "voluntary_surrender." After this step, commonly occurring noninformative words, referred to as "stop words" (e.g., a, it, about, all, amount) and domain-specific noninformative stop words (e.g., case, respondent) were identified with the Natural Language Toolkit (Bird et al., 2009) and removed. Word tokens were then lemmatized based on the root word (e.g., obtained, obtains, and obtain were all grouped in the root word obtain).

To examine the dominant themes in the case text corpus and provide a richer understanding of disciplinary efficiency, we used a

TABLE 1.

Descriptive Statistics of Nursing Discipline Cases Across 10 States (N = 55)

Case Characteristics	n (%) ^a
Case Category	
Professional misconduct	12 (21.8%)
Impairment/diversion	12 (21.8%)
Practice error	10 (18.2%)
Criminal	7 (12.7%)
Random	14 (25.5%)
Case Resolution	
Yes	40 (72.7%)
No	15 (27.3%)
Open Caseload, median (IQR)	494 (125–787)
No. of Active Investigators, median (IQR)	3 (2–13)
Case-to-Investigator Ratio, median (IQR)	60 (29–131)
No. of Case Steps, median (IQR)	10 (6–15)
Days to Close, median (IQR)	177 (113–271)
Mandated No. of Board Members^b	
6–9	5 (50%)
10–13	4 (40%)
14–17	1 (10%)
No. of Regular Board Meetings (Prior FY)^b	
1–4	3 (30%)
5–8	4 (40%)
9–12	2 (20%)
>12	1 (10%)
Agency Type^b	
Independent	7 (70%)
Umbrella	3 (30%)
Power and Duties Include Formal Hearings^b	
Yes	7 (70%)
No	3 (30%)
Note. IQR = interquartile range; FY = fiscal year. Valid N for each item varies based on observed nonresponse rates; all proportions are reported based on item-level valid N. ^a Data reported as n (%) unless otherwise noted. ^b Data reported by responding nursing regulatory body (N = 10).	

Latent Dirichlet Allocation (LDA) probabilistic model (Blei et al., 2003) to identify abstract themes present in efficient as well as inefficient cases. We then subjectively identified topics associated with these abstract themes to understand how the two case categories differed in text. Broadly, an LDA approach assumes observations are composed of a random mixture of latent topics, with a common Dirichlet prior distribution. These latent topics are then represented by word probabilities. The Gensim Python library (Rehurke & Sojka, 2011) and Mallet (Machine Learning for Language Toolkit; <http://mallet.cs.umass.edu/about.php>) LDA implementation relies on an optimized Gibbs sampling algorithm to estimate latent topic structure associated with the records and then categorized as either inef-

ficient or efficient cases. As such, words with higher weights within each group inform the content of the final topics. Model results were then evaluated using the CV coherence metric ($0 < CV < 1$) to assess the quality of topics identified from the corpus.

Results

Baseline Information

The 10 states in this sample provided geographical as well as operational diversity. Although each state was asked to provide data on only five cases, some NRBs voluntarily exceeded this total, and one fell just short, bringing the total number of cases reviewed for the final analysis to 55. Across the 55 cases, there were a total of 706 case entries for an average of 13 entries per case. There was an even distribution across three of the four fixed case categories, but there was a higher observed rate of random cases due to the comparative lack of criminal cases across participating jurisdictions during the 2-year period (Table 1). Nearly three-quarters of all cases (73%) were resolved by the conclusion of the study (June 2020). The median number of steps involved in each case was 10 and the median closure time was 177 calendar days.

The median open caseload across NRBs was 494, but the distribution varied greatly, as is evident from the interquartile range. The 25th percentile was 125 and the 75th percentile was 787, underscoring the range of case volumes across participating NRBs. Similarly, the median investigator count was 3 (IQR = 2, 13), but some NRBs reported that only one dedicated staff member was assigned to cases or that just a proportion of one staff member's time was allotted for cases, whereas other larger NRBs reported more than 30 investigators on staff. To account for this variability, we calculated a case-to-investigator ratio variable. The median number of cases per investigator was 60, with an interquartile range of 29 to 131.

From the 2020 Member Board Profiles, half the sample of NRBs reported the mandated number of board members at 6–9 (50%), followed by 10–13 (40%) and 14–17 (10%). A plurality of participating NRBs met between 5–8 times per year (40%). Most NRBs were independent agencies (70%) rather than umbrella organizations (30%), and approximately two-thirds of NRBs reported powers and duties that included holding formal disciplinary hearings (70%).

Operational Efficiency Univariable Trends

The independent associations between board and case characteristics and the odds of inefficient case resolution were initially the focus of the analysis. Four variables emerged as significant drivers of inefficient case resolution: high open caseload, large case-to-investigator ratio, increased number of case steps, and umbrella agency type (Table 2). Overall, case volume contributed to inefficient case resolution. For every 100 additional cases, investigations were about 12% more likely (OR = 1.12, 95% CI = 1.05 – 1.19) to be inefficiently resolved ($p = .001$). To be more specific in terms of operations, for every 10 additional cases per investigator, NRBs documented an 8%

TABLE 2

Univariable and Multivariable Analyses Examining Inefficient Case Resolution

Case Characteristics	Inefficient Case Resolution			
	OR (95% CI)	p	AOR (95% CI)	p
Case Type Frequency^a		.84		
Most common	0.88 (0.37 – 2.07)	.76		
Second most common	0.75 (0.19 – 2.90)	.68		
Third most common	1.40 (0.45 – 4.35)	.56		
Fourth most common (Ref)	–			
Case Category		.86		
Professional misconduct	0.82 (0.28 – 2.43)	.72		
Impairment/diversion	1.17 (0.24 – 5.57)	.85		
Practice error (Ref)	–			
Criminal	1.00 (0.23 – 4.35)	.99		
Open Caseload (Unit = 100)	1.12 (1.05 – 1.19)	.001	1.12 (1.06 – 1.19)	<.001
No. of Active Investigators	1.03 (0.99 – 1.06)	.15		
Case-to-Investigator Ratio (Unit = 10)	1.08 (1.01 – 1.14)	.02		
No. of Case Steps	1.08 (1.02 – 1.15)	.01	1.08 (1.03 – 1.13)	<.001
Mandated No. of Board Members		.23		
6–9 (Ref)	–			
10–13	2.93 (0.65 – 13.25)	.16		
14–17	3.60 (1.46 – 8.89)	.01		
No. of Regular Board Meetings		.49		
1–4 (Ref)	–			
5–8	0.41 (0.05 – 3.41)	.41		
9–12	0.28 (0.04 – 1.78)	.18		
>12	0.50 (0.09 – 2.82)	.43		
Umbrella Agency Type (Ref = 'Independent')	2.20 (1.00 – 4.83)	.053	1.71 (1.06 – 2.78)	.02
Power & Duties Include Formal Hearings	0.29 (0.06 – 1.37)	.12		

Note. AOR = adjusted odds ratio; Ref = referent; FY = fiscal year. The unit of increase for all continuous predictors was defaulted to 1 unless otherwise noted.

^aCase type frequency is a self-reported item by participating nursing regulatory boards, which corresponds to the case category they indicated they review most often.

increase in inefficient case resolution (OR = 1.08, 95% CI = 1.01 – 1.14, $p = .02$). In addition, the number of steps involved in a case was viewed as a possible indicator of the complexity of the case. Like case volume and the case-to-investigator ratio, for every additional step required in a case investigation, a board had an 8% increase in the likelihood of inefficient case resolution (OR = 1.08, 95% CI = 1.02 – 1.15, $p = .01$). The indicator variable identifying agency type also trended toward significance, with umbrella boards being 2.20 times (95% CI: 1.00 – 4.83) more likely to document inefficient case resolution compared to independent ones ($p = .053$).

To further explore the three continuous predictors aligned with operational efficiency on univariable analysis, receiver operating characteristic curves were generated to identify specific cut points at which NRBs could expect to see an efficiency drop-off. Beginning with the open caseload variable, a meaningful cut point at >787, or anything above the third quartile in the sample, was identified (Figure 1). The area under the curve (AUC), which is a measure of model fit, was acceptable (AUC = 0.67, 95% CI = 0.53 – 0.81), suggesting an accurate but ultimately less informative reference point

for the open caseload variable. Furthermore, the results suggested a strong positive predictive value, indicating more than 787 caseloads correctly identified 90% of the cases that would ultimately run over the median closure time.

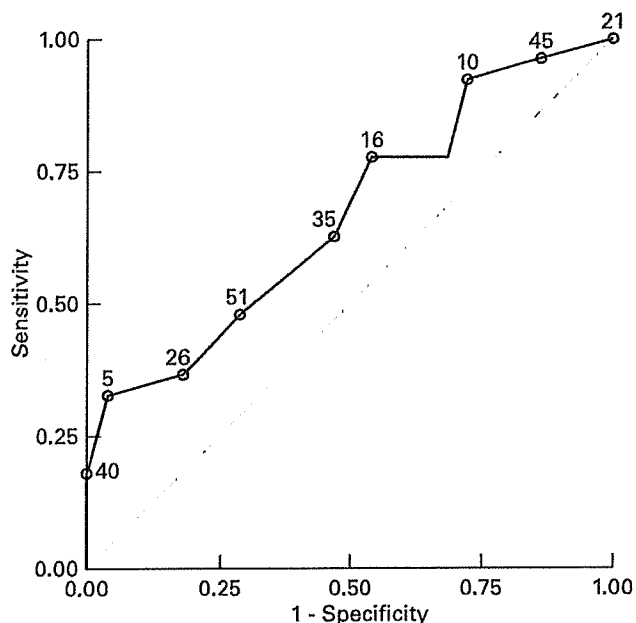
Meaningful cut points for the case-to-investigator ratio and number of case steps were identified at 38 (Figure 2) and 11 (Figure 3), respectively. The AUC for both metrics was good (Ratio: AUC = 0.76, 95% CI = 0.62 – 0.90; Steps: AUC = 0.75, 95% CI = 0.60 – 0.89), indicating accurate and predictive reference points for both variables. Case-to-investigator ratios higher than 38 correctly identified 81% of the cases that would ultimately run over the median closure time, whereas 11 case steps identified 68% of similar cases.

Operational Efficiency Multivariable Trends

On multivariable analysis, modeling was extended to explore the significant univariable trends adjusting for other important covariates. Initially, we further controlled for case category to better understand whether some of the barriers to efficient case resolution were

FIGURE 1

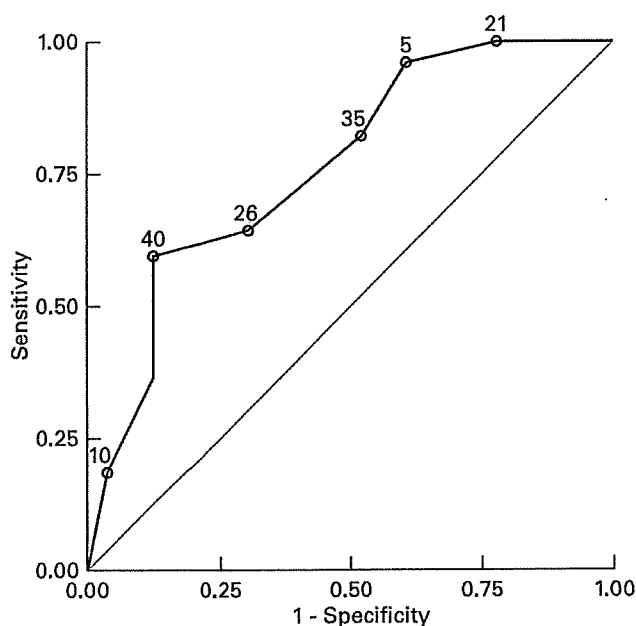
Receiver Operating Characteristic Curve for Caseload



Area under the curve = 0.6713
Points labeled by observation number

FIGURE 2

Receiver Operating Curve for Case-to-Investigator Ratio



Area under the curve = 0.7569
Points labeled by observation number

related to the underlying case type. For instance, we wanted to learn whether criminal cases might exacerbate or mitigate some of these patterns; they did not (results not shown). Furthermore, upon closer examination, the case-to-investigator ratio was determined to be less informative than the overall open caseload metric and highly correlated with umbrella agency type, so the ratio was dropped from further modeling.

A three-variable model including open caseload, number of case steps, and umbrella agency type was identified as the most parsimonious and predictive model when assessing operational efficiency. After adjusting for the number of case steps and umbrella agency type, a case was still about 12% more likely ($OR = 1.12$, 95% $CI = 1.06 - 1.19$) to be inefficiently resolved for every 100 additional cases ($p < .001$). Similarly, controlling for open caseload and umbrella agency type, for every additional step required in a case investigation, a board documented a sustained 8% increase in the likelihood of inefficient case resolution ($OR = 1.08$, 95% $CI = 1.03 - 1.13$, $p < .001$). Additionally, umbrella agencies remained 71% more likely ($OR = 1.71$, 95% $CI = 1.06 - 2.78$) to have inefficient case resolution compared to independent agencies after further adjustments for open caseload and number of case steps ($p = .02$).

Natural Language Processing (NLP) Analysis

To analyze the unstructured data, the 706 case entries were extracted (>16,500 words) and categorized as to whether they were resolved efficiently (under the median time to resolution) or inefficiently (over the median time). This bifurcation resulted in 424 records over the median processing time and 282 records under. For disciplinary records exceeding the median time to close, we identified 8 subjective topics with a CV coherence score of 0.50. For records at or under the median time, we identified 14 subjective topics with a CV coherence score of 0.46. Tables 3 and 4 highlight the five most salient topics related to inefficient and efficient cases, respectively, including the proportion of observations contributing to each subjective topic, associated keywords, and a representative excerpt from a record (records were edited lightly for style and clarity).

The results present an interesting snapshot of investigators' experiences in managing these cases. For inefficient cases, underlying trends associated with criminal activity, including felonies, arrests, prosecutors, and concealment, emerged (Table 3). By contrast, for efficient cases, administrative themes associated with subpoenas, notice letters, requests, calls, and emails appeared (Table 4).

Although administrative steps dominated both groups, the pronounced emphasis on the words "felony," "charge," and "subpoena" with inefficient cases aligns with the overall finding of case complexity, measured as the number of case steps. This finding suggests built-in delays with more administratively burdensome cases, especially ones that involve possible criminal investigations. By contrast, more routine investigations for which mitigating factors lead to "settlement" or "probation" may typify more efficient cases.

Discussion

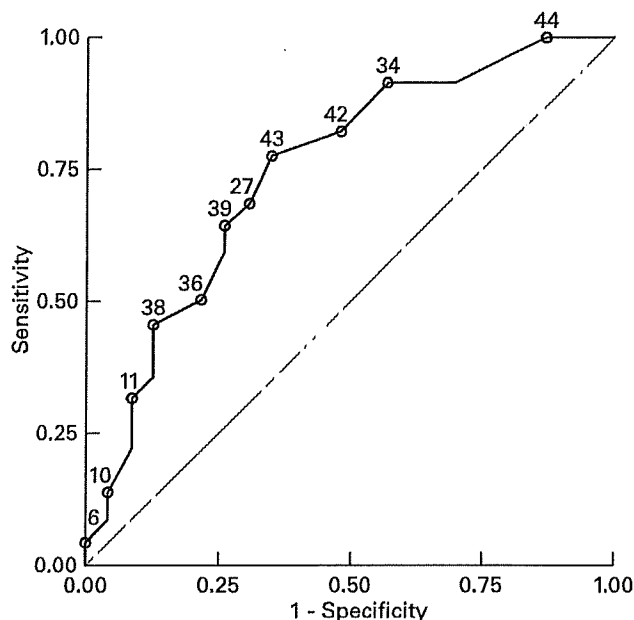
Despite differences in staffing, operations, and terminology that make it difficult for NRBs to create a standardized method for objectively evaluating discipline case management, there are indicators of operational efficiency that transcend individual jurisdictions. Those indicators are the volume of open cases, the ratio of cases to individual investigators, and the number of steps necessary to resolve a case. Furthermore, as prior research has suggested, these measures become even more critical for umbrella agencies that consistently resolve and report cases less efficiently than independent NRBs (Benton et al., 2016; Benton & Rajwany, 2017). Through increased collaboration and information sharing, NRBs can increase the efficiency and effectiveness of their operations and, in doing so, improve the quality and safety of patient care (Benton, 2017b). To this end, actively monitoring critical factors linked to efficient discipline case management can provide concrete insights to promote proactive risk mitigation strategies.

NRBs have long worked to ensure the objectivity of their discipline case management (Brennan, 2013; Carter & Kauder, 2016; Benton, 2017b). The present analysis establishes several meaningful reference points that can further inform proactive monitoring and triage of future discipline cases. Agile yet predictable regulatory systems that apply right-touch regulation are best achieved and supported by systematic data collection (Brennan, 2013; Worley, 2017). Moving forward, routinizing basic data collection standards across all NRBs can facilitate ongoing case monitoring and thereby active measurement of operational efficiency. As illustrated by the NLP findings, even a broader accounting and a rudimentary understanding of the nature of an NRB's or individual investigator's current caseload (e.g., number or severity of the criminal offenses) can provide important insights into the potential for gains or losses in operational efficiency.

In light of intensifying public scrutiny of the regulatory process (Benton, 2017a), it is imperative that NRBs continue to take steps to ensure the consistency and transparency of their operations (Brennan, 2013; Carter & Kauder, 2016; Benton, 2017b). Much of the research on the topic of discipline case management to date has been limited to benchmarking performance for comparative purposes by isolating particular board or nurse characteristics (Alabama Board of Nursing, 2016; Lugo et al., 2010; Benton et al., 2016; Benton & Rajwany, 2017). Therefore, the findings of the present study address an important gap in the literature by identifying indicators of efficient discipline case management that transcend individual jurisdictions. Active monitoring of these metrics and proactive steps to address possible issues as they emerge could reduce the time to case resolution and thereby streamline the return to practice of safe and effective nurses, as appropriate, particularly during a time of significant workforce need such as the COVID-19 pandemic. Furthermore, universal standardization of core data collection procedures is an important first step toward promoting a safe and effective borderless nursing landscape across not only the United States but also internationally (Alexander et al., 2021).

FIGURE 3

Receiver Operating Characteristic Curve for Number of Case Steps



Area under the curve = 0.7451

Points labeled by observation number

Limitations

There are several limitations to the current analysis that bear further consideration. First and foremost, there was a 17% participation rate across all U.S. NRBs. So, although there was good geographical and operational diversity within our pool, the small sample size limits the precision of some estimates, as well as the researchers' ability to generalize to all U.S. NRBs. Second, there was a relative imbalance in representation among umbrella and independent NRBs in the study cohort. As with this analysis, prior research has documented several notable differences between these agency types on a range of public safety measures (Benton et al., 2016; Benton & Rajwany, 2017); thus, the overrepresentation of independent NRBs, which in prior studies demonstrated greater efficiency, may have a moderating effect on key performance measures, such as days to case resolution.

Third, the lack of observed variability or unavailability of certain metrics of interest, such as the proportion of each NRB's budget allocated to discipline and case priority ratings, compounded sample limitations. As such, these initial results should be supplemented with additional research on these topics to augment and verify the conclusions drawn from the analysis. Fourth, although the methodology for selecting a random case afforded a measure of flexibility to participants, the results may not reflect the distribution of case categories observed across all U.S. NRBs. Fifth, case closure was determined up to or by the end of the 2-year review period (June 2020), which included the initial onset of the COVID-19 pandemic in the United States. This artificial truncation and any potential administrative delays due to state lockdowns, etc. may have resulted in the

TABLE 3

Topics and Keywords for Cases With Inefficient Case Resolution

Subjective Topic	Documents, % (n)	Keywords	Representative Record
Indirect communication	40.5% (172)	receive, record, send, review, board, order, letter, subpoena, request, investigation	A request for a reasonable cause subpoena was submitted to Legal. Legal is requesting additional information. (Reasonable cause subpoenas are presented to the probable cause panel of the board when we cannot obtain an authorization to release the medical records and believe the case may have merit.)
Direct communication	22.4% (95)	send, call, email, nurse, complainant, licensee, receive, document, facility, contact	Call placed to [attorney] that the nurse needs to go in person to evaluator, sign the release of information (ROI), and share the eval with him herself. He agrees—prefers he will then call the nurse to obtain a copy of the evaluation to review and then to share with the board.
Legal process	16.5% (70)	review, plan, board, bon, complaint, prosecutor, license, investigation, practice	Case with Deputy Attorney General—pending review of city prosecutor's conclusions and plan. Review at team meeting next week and BON quarterly meeting. Considering if preponderance exists with limited evidence—license active-unencumbered at this time.
Prosecution	5.8% (25)	arrest, felony, report, offense, repository, court, charge, plea, request, dui	Individual stated she still is not able to work as a licensed nurse due to felony postincarceration.
Assessment of complaint	4.9% (21)	assessment, home, send, complaint, visit, email, pm, patient, eval, contact	Services is sending the assessment/eval for nurse. We asked that the office add the biopsychosocial element to the eval. Evaluator says although nurse completed [certain requirements (e.g., graduated from DUI court)] ... she still lacks the insight she needs for long-term relapse prevention while working as a licensed nurse. [Evaluator] is in contact with the courts, for prior assessments.

Note. bon or BON = board of nursing; dui or DUI = driving under the influence; eval = evaluation.

TABLE 4

Topics and Keywords for Cases With Efficient Case Resolution

Subjective Topic	Documents, % (n)	Keywords	Representative Record
Communication	33.4% (81)	send, response, receive, complaint, request, review, record, licensee, letter, report	Board staff sent a Subpoena Duces Tecum to the facility, requesting personnel file, medical pass records, video (if any), nurses' notes, [and] medical administration records regarding medical treatment.
Database retrieval	26.4% (64)	agent, email, receive, interview, information, database, licensee, criminal, request, review	Paralegal searches external databases for criminal [background] and adds to pending criminal case tracker. Checks nurse's current license status.
Referral	17.7% (43)	board, disciplinary, review, order, recommendation, council, member, letter, compliance	Case presented to advisory council; council made recommendation to issue a non-disciplinary letter of concern with administrative fee.
Investigative	10.7% (26)	interview, request, call, employer, telephone, return, left message, investigator, licensee, leave	Called to set up telephone interview with employer—CNO of facility. Left message for return call.
Attorney communication	6.6% (16)	attorney, settlement, probation, stipulation, agreement, licensee, mail, accept, investigation, sign	The licensee has not responded to the Settlement Agreement option. Forwarded matter to AG's office to prepare for April hearing.

Note. AG = attorney general; CNO = chief nursing officer.

true case resolution rate being underreported. Finally, as noted by others (Basta et al., 2021), the textual corpus utilized in the NLP models may include elements of latent bias (e.g., gender, race, etc.) that could influence the development of topic domains.

Conclusion

To achieve their mandate of ensuring public safety, NRBs must remain agile and utilize evidence-based approaches to manage disciplinary cases. In the United States and across the globe, NRBs that efficiently and effectively execute the disciplinary process facilitate the appropriate and safe return to practice of effective nurses. To accomplish that task, though, it is critical to routinize standardized data collection procedures to facilitate proactive monitoring of operational efficiency. The findings of this study provide useful reference points for understanding the drivers of inefficient case management; however, more research on this important topic is needed to augment and extend these results both in the United States and abroad.

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Conflicts of Interest: None.



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