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2024 DIVERSION TRENDS REPORT

AN ANALYSIS OF DRUG DIVERSION INVESTIGATIONS AND EVENTS FROM 2022 THROUGH 2023

INTRODUCTION

ControlCheck[™] is a market-leading diversion monitoring solution from Bluesight. As of 2024, ControlCheck is trusted by 850+ hospitals to both identify and prevent diversion across nursing, OR, and pharmacy. The software provides nearly 100% closedloop audit by ingesting various data including procurement information from wholesalers, inventory and dispensing tracking from automated dispensing cabinets, electronic health records, and HR data such as time and attendance records. ControlCheck tracks every dispense through the corresponding administrations, waste, and/or return events to ensure that the full volume dispense is accounted for across all documentation systems, care providers, and handoffs.

This report is primarily based on two years of ControlCheck data from January 2022 through December 2023 and over 127M controlled substance transactions occurring at 794 hospitals and health systems across the United States. Throughout 2022 and 2023, the dataset increased from 354 hospitals to 794*. Some figures throughout this report will be noted as all-time ControlCheck data from September 2018 through December 2023 including over 190M controlled substance transactions.

Over **127M** controlled substance transactions occurring at **794 hospitals**

*See appendix on page 21 for more information on the hospital dataset

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KEY THEMES

TREND 1

FOCUSING ON THE MOST IMPORTANT TRANSACTIONS

As the percentage of variances decrease, hospitals can focus more on the transactions that truly require attention.

TREND 2

RESOLVING VARIANCES

The majority of identified variances have been reviewed and closed.

TREND 3

RUNNING EFFICIENT INVESTIGATIONS

Investigations have been closing 37 days sooner than at the beginning of 2022.

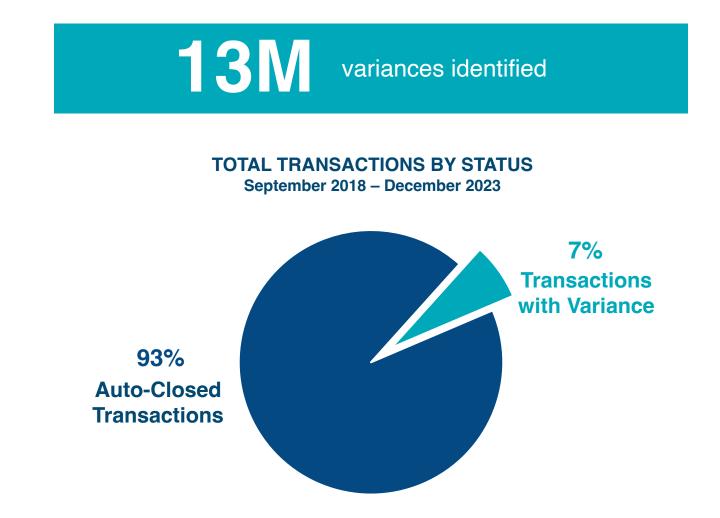
TREND 4

CONFIRMING DIVERSION

As drug diverters are identified, most cases are associated with Fentanyl and Nursing settings.

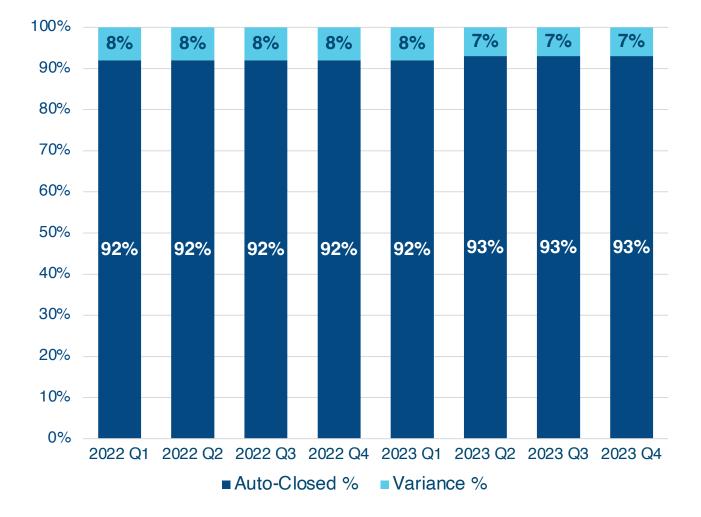
7% OF ALL CONTROLLED SUBSTANCE TRANSACTIONS WERE DISCREPANT

Of the 190M medication transactions that have been tracked by ControlCheck, 93% were automatically closed out with all medication volumes accounted for, while the remaining 7% represented variances. These variances are a discrepancy between the order of a medication and it's dispense, administration, waste, and/or return. Variances typically highlight either a gap in documentation or a potential instance of diversion and require further review.



THE RATE OF VARIABLE TRANSACTIONS IS TRENDING DOWN

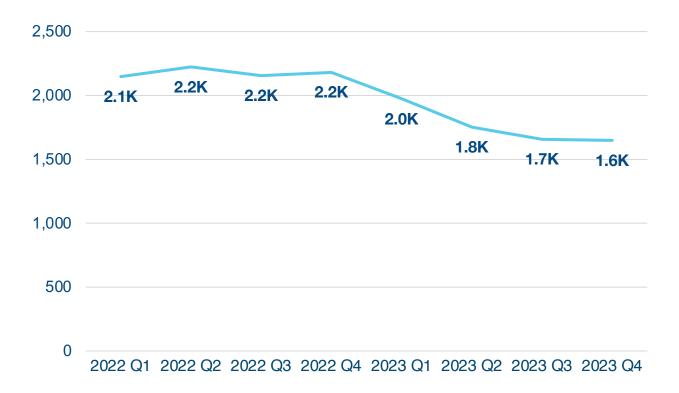
Throughout 2022, the all-time variance rate remained steady at 8%, until it declined to 7% during 2023. This change may be caused by hospitals improving their documentation compliance as well as ControlCheck improving its ability to detect real discrepancies. This 1% decrease represents nearly 2M transactions with complete and compliant documentation.



PERCENT OF TRANSACTIONS WITH VARIANCE

SIMILARLY, THE NUMBER OF VARIANCES PER HOSPITAL HAS DECREASED

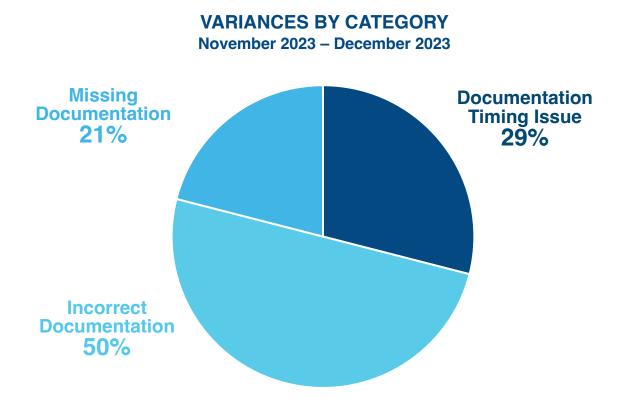
Throughout 2022 and 2023, as the number of hospitals using ControlCheck increased, the cumulative variances rose from 5M to 13M. However, the number of variances per hospital during each quarter decreased by nearly 500 transactions since the beginning of 2022. This trend, consistent with the variance rate reduction illustrated on the previous page, is primarily driven by an increase in auto-closed transactions in ControlCheck and improved documentation compliance.



AVERAGE NUMBER OF QUARTERLY VARIANCES PER HOSPITAL

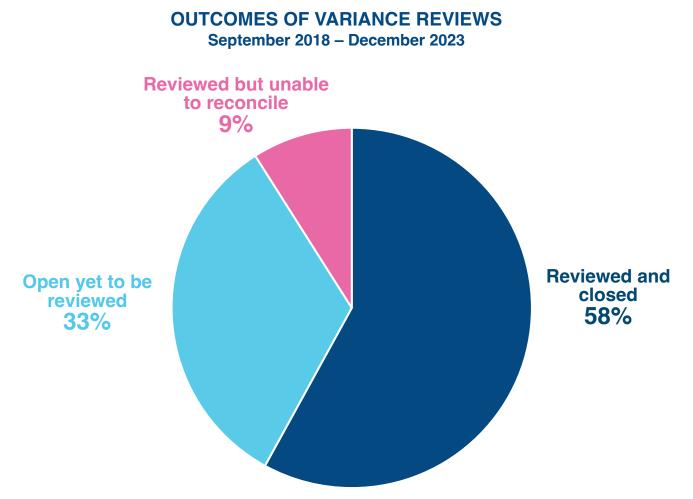
HALF OF VARIANCES ARE DUE TO INCORRECT DOCUMENTATION

In November 2023, ControlCheck launched a feature that enabled users to categorize variances into customizable categories with three parent categories. Among these, half of variances over the last two months of 2023 were caused by incorrect documentation, referencing errors such as wrong patient, mischarting, wrong drug, or incorrect amount. The other parent categories include Missing Documentation – such as undocumented waste, no administration, or missing return – and Documentation Timing Issue – including late documentation, back charting, or delay in waste. The tracking of these categories is anticipated to enhance auto-close summaries in the future.



9% OF DISCREPANT TRANSACTIONS COULD NOT BE RESOLVED AFTER REVIEW

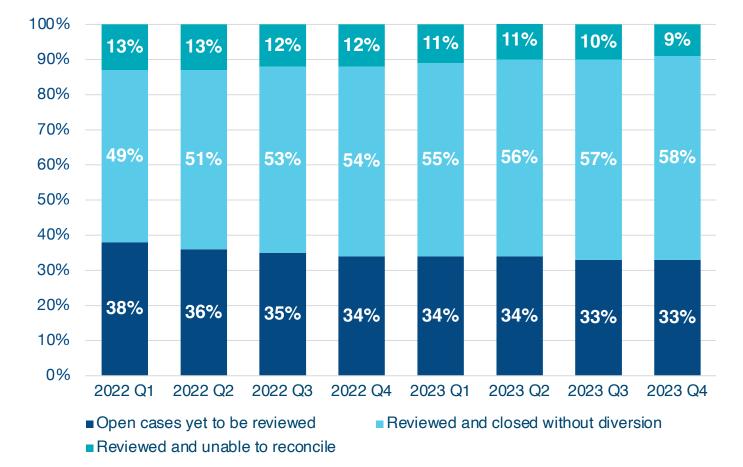
As previously observed, 7% of all controlled substance transactions included variances in data that highlight the possibility of drug diversion taking place and require further review. Of these discrepant transactions, 58% were resolved after reviewing while 9% were unable to be reconciled. The irreconcilable instances may warrant further investigation to determine if diversion was involved. The remaining 33% were recently opened but have not yet been reviewed by hospital staff.



Bluesight Diversion Trends Report, 2024

THE SHARE OF IRRECONCILABLE VARIANCES IS STEADILY DECREASING

Since 2022, the share of variances reviewed and closed (i.e., not considered diversion) grew 9% while the share of irreconcilable transactions declined 4%. This suggests that a smaller percent of variances will lead to an investigation but given the total increase of total transactions and variances observed earlier, this trend does not necessarily illustrate a decline in investigations. Meanwhile, the number of open cases at a given time decreased by 5% which may reflect more efficient variance reviews.



OUTCOMES OF VARIANCE REVIEWS

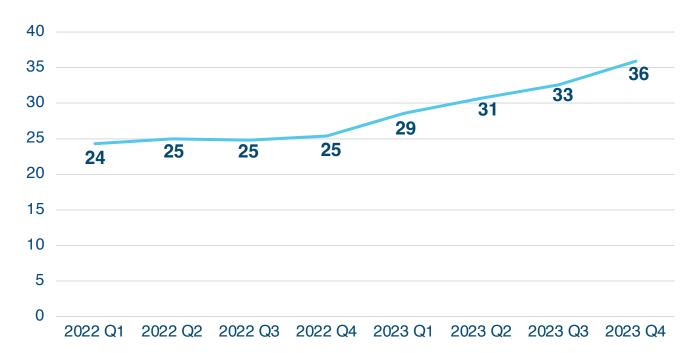
THE AVERAGE HOSPITAL IS **CONDUCTING 47% MORE INVESTIGATIONS**

When a variance cannot be reconciled or other unusual activity is observed, hospitals open investigations to conduct further review. Since the beginning of 2022, the average number of investigations per hospital has increased from 24.3 to 35.9 – a 47% jump. While this trend has not slowed, it is anticipated that starting in the second half of 2024, investigations may decrease due to a feature in ControlCheck that will guide reviews on individual users prior to opening investigations.



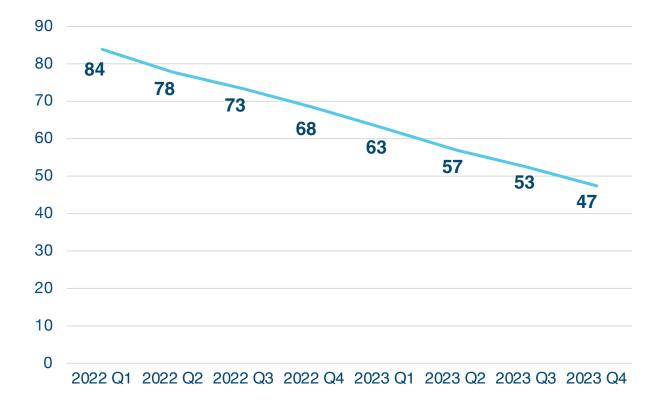
47% Increase in investigations per hospital

AVERAGE NUMBER OF INVESTIGATIONS PER HOSPITAL



MEANWHILE, EACH INVESTIGATION IS TAKING FEWER DAYS TO CONDUCT

Despite the increase in investigations, each case is taking 37 fewer days on average to conduct and close than it was at the beginning of 2022. Each quarter the average length of an investigation decreased by 4-6 days. This consistent decline is a sign of enhanced workflows or more efficient evidence collection which may be supported by the increase in staff resources for diversion that was denoted in the 2023-2024 Hospital Pharmacy Operations Report.



AVERAGE INVESTIGATION LENGTH (IN DAYS)

INVESTIGATIONS OPENED DUE TO PATIENT OR COLLEAGUE REPORTS SHOW THE HIGHEST CONFIRMED DIVERSION RATE

Among the investigations opened in ControlCheck since September 2018, 49% are based on ControlCheck data, which is categorized as information proactively flagged in the application. Another 46% are due to routine surveillance, which refers to reviewing top providers without a particular reason to investigate. Investigations based on specific flagged activity in ControlCheck are 3x more likely to be confirmed as diversion in comparison to routine surveillance. Patient, colleague, and self-reported activity is a less common open reason, yet the investigations opened based on patient or colleague reports tend to yield a significantly higher confirmation of diversion (29%) compared to the other open reasons.

	Investigations	Average Days to Investigate	Percent confirmed*
ControlCheck Data	8,565	51	6%
Patient or Colleague Reported	724	87	29%
Routine Surveillance	8,107	29	2%
Self Reported	125	31	13%

INVESTIGATION OPEN REASONS September 2018 – December 2023

*Percent confirmed excludes the investigations that had not yet been closed by December 31, 2023.

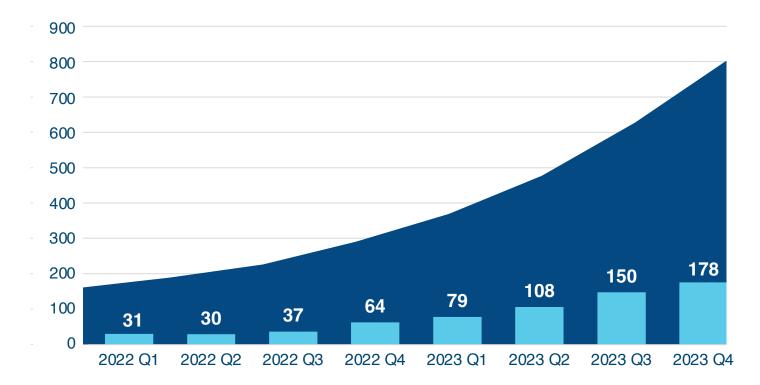
HOSPITALS HAVE CONFIRMED 805 CASES OF DIVERSION

Since September 2018, hospitals using ControlCheck have confirmed a total of 805 cases of diversion. These confirmed cases are those that have either been reported externally as diversion or those in which the involved individual faced disciplinary action at the close of the investigation. By the end of 2023, the rate at which ControlCheck was helping to detect diversion was about 2 diverters identified every day.



total confirmed cases of diversion 2018 - 2023

TOTAL AND QUARTERLY DIVERSION CASES CONFIRMED



AND EACH DIVERTER IDENTIFIED REDUCED THE RISK OF WASTE AND FEES

The confirmed cases of diversion represent 805 instances in which action was taken to improve patient safety, prevent additional waste, and avoid fees. If each of these instances of diversion were identified by a regulatory organization rather than detected by each hospital, the total cost in fees would accumulate to over 470M or an average fine of \$565,000 per case of drug diversion*.



of potential fines avoided



average fine per case of diversion

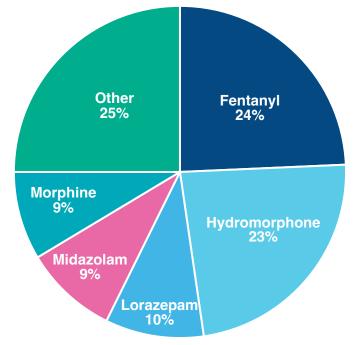
*Source: (2020). U.S. Department of Justice National Drug Intelligence Center (NDIC)

SIMULTANEOUSLY, THE COST OF WASTE NOT ASSOCIATED WITH CONFIRMED DIVERSION IS ADDING UP

Whereas waste can be considered a consequence of diversion, it can also be a risk factor for diversion. In fact, over 16M total units of injectables – nearly half of which were Fentanyl or Hydromorphone – were wasted because the dose prescribed was less than the total package volume. Each of these waste events, which total to 24% of all dispenses, create an additional risk of diversion taking place. Additionally, this waste equates to \$38M* and could have been reduced if each syringe included a more optimal dosage.

16,091,709 Total wasted packages (vials, syringes, ampules) **\$38,620,102**

of wasted injectable drugs*

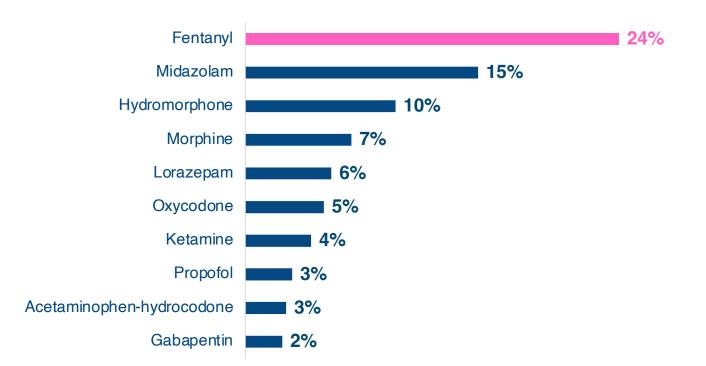


WASTE EVENTS BY DRUG

*Source: Hertig, J., Jarrell, K., Arora, P., Nwabueze, J., Moureaud, C., Degnan, D. D., & Trujillo, T. (2020). A Continuous Observation Workflow Time Study to Assess Intravenous Push Waste. Hospital Pharmacy.

FENTANYL IS THE TOP DRUG ASSOCIATED WITH VARIANCES

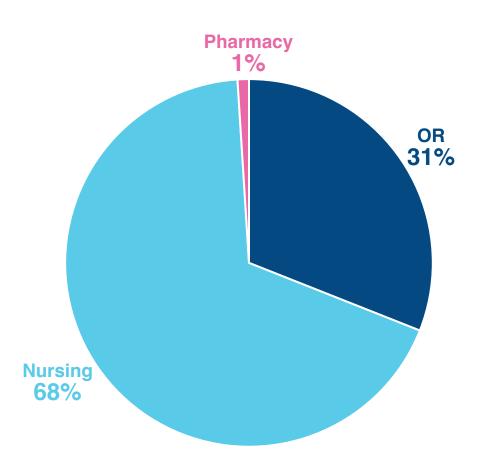
Among the 13M controlled substance transactions with variances identified since 2018, nearly a quarter involved Fentanyl, followed by Midazolam (15%) and Hydromorphone (10%). These three drugs will likely continue as the most common associated with variances, as reflected by their prevalence in transactions from 2022 through 2023. Over the two-year period, the portion of variances with Fentanyl transactions ranged between 31-32%, followed once again by Midazolam (19%-20%) and Hydromorphone (12-13%).



TOP 10 DRUGS WITH VARIANCES September 2018 – December 2023

MOST VARIANCES OCCUR IN NURSING SETTINGS

Across different settings in which controlled substances are typically handled, transactions with variances occur in nursing settings 68% of the time, followed by the OR 31% of the time. The remaining 1% of variances have been associated with a pharmacy setting, likely due to fewer controlled substance transactions take place in the pharmacy setting in comparison. In nursing and OR settings, data from EMRs and ADCs is examined, whereas in pharmacy settings, data from the wholesaler and narcotics vault are observed.

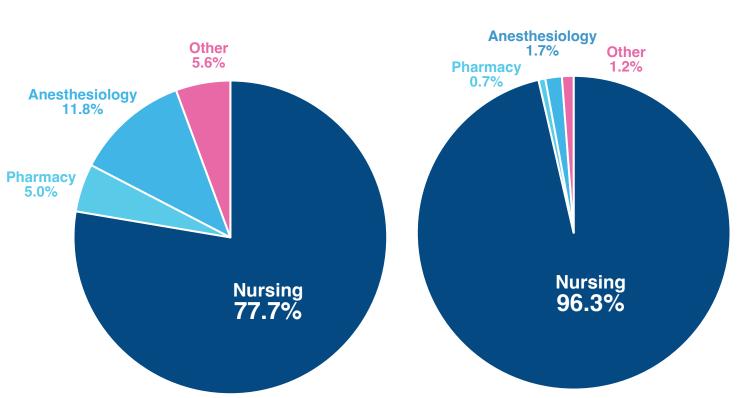


VARIANCES BY SETTING November 2023 – December 2023

VARIANCES BY ROLE

REGISTERED NURSES ARE THE TOP ROLE FLAGGED FOR VARIANCES AND CAUGHT DIVERTING

In congruence with most variances occurring in nursing settings, most variances are also associated with nursing staff – specifically RNs (65%) and CRNAs (12%) – followed by anesthesiologists (12%) and pharmacy staff (5%) which includes both pharmacists and pharmacy technicians. This is largely attributed to most controlled substance transactions involving nursing staff. Notably, confirmed diversion follows the same trend – led by nursing (96%) and followed distantly by anesthesiologists (2%) then pharmacy staff (1%).



DIVERSION BY ROLE

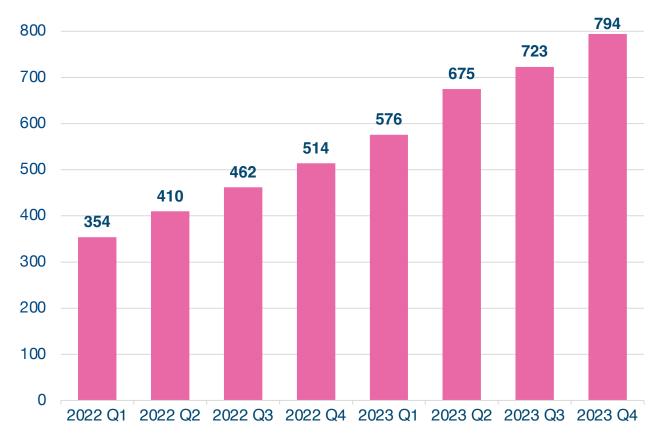
KEY TAKEAWAYS

- The percentage of discrepant transaction has decreased from 8% to 7%, which may be a sign of improving documentation compliance and/or smarter detection of true discrepancies.
- Half of transaction variances are flagged due to incorrect documentation, meaning there was mischarting or a discrepancy that reflected the wrong patient, drug, or dosage.
- Investigations are being conducted more efficiently and are closed 37 days sooner on average.
- Fentanyl, Midazolam, and Hydromorphone continue to lead as the top drugs involved in variances.
- As most controlled substance transactions take place in the nursing setting, RNs are among the top staff role involved in both variances and confirmed drug diversion.





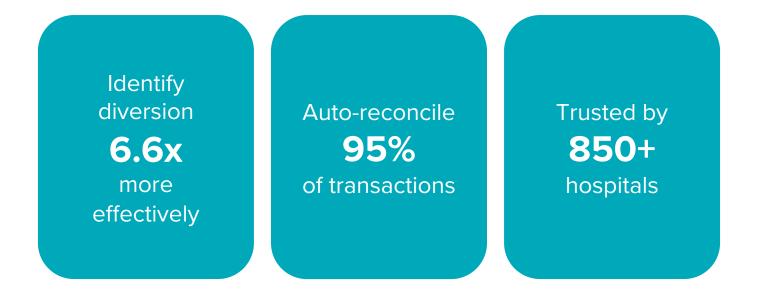
Throughout 2022 and 2023, the Bluesight dataset increased from 354 hospitals to 794. The growth of total hospitals included in this analysis contributes to the growth of certain figures such as an increase in variances per quarter, investigations per quarter, and confirmed diversion per quarter.



NUMBER OF HOSPITALS EVALUATED



Learn how the most comprehensive diversion monitoring solution can help you.



Learn more at bluesight.com

