Annual Report
July 2025 – June 2026*

California Medication Error Reporting Program (CAMER)

Prepared for
California Board of Pharmacy

Prepared by
Institute for Safe Medication Practices

July 2026

* Licensees were required to report medication errors that occurred on or after September 1, 2025

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Background

Business and Professions Code (BPC) section 4113.1 establishes requirements for a community pharmacy to report medication errors to an entity approved by the California Board of Pharmacy (Board). The statute requiring medication error reporting can be viewed at BPC section 4113.1.

In September 2024, after a competitive bidding process, the Board approved the Institute for Safe Medication Practices (ISMP), an ECRI Company, as the entity to receive and review medication error reports under BPC section 4113.1.

The Board established that medication errors that occur on or after September 1, 2025, must be reported to the CAMER system in accordance with the established legal requirements.

On June 30, 2025, the California Medication Error Reporting (CAMER) system portal went live, allowing required pharmacies to report medication errors pursuant to BPC section 4113.1. This report provides risk-reduction recommendations based on analysis of data collected from July 1, 2025, through June 30, 2026. However, please note that licensees were required to report medication errors that occurred on or after September 1, 2025.

For the reporting period July 2025 – June 2026, licensees submitted a total of 27,161 reports.

Hierarchy of Risk-Reduction Strategies

In order for organizations to minimize preventable errors, they must actively seek out and mitigate inherent, pervasive risks in the system. To achieve this, focus must be placed on enhancing both system and human reliability. This includes prioritizing error prevention, ensuring errors are reported when they occur, and diligently mitigating harm to patients if an error reaches them. Creating a truly safe healthcare system typically requires multiple strategies, balancing system and human reliability with ease of implementation, categorized by those that are high-, medium-, and low-leverage.

ISMP's Hierarchy of Effectiveness of Risk-Reduction Strategies (**Figure 1**) is a model that provides a multifaceted approach to risk reduction. High-leverage strategies are the most effective because they can eliminate the risk of errors and associated harm by designing out hazards, although they often require complex implementation plans and significant resources. Medium-leverage strategies are easier to implement and help reduce the likelihood of errors and minimize patient harm. However, on their own, they may need periodic updating and reinforcement and will not guarantee 100% patient protection. Certain medium-leverage strategies also pose a risk to workflow and alert fatigue if they do not have governance around them (e.g., having multiple checklists or pharmacy dispensing system alerts may have untold consequences if too many are implemented and then become burdensome). Low-leverage strategies aim to improve human performance and are generally easy and quick to implement. However, they are the least effective strategies for error prevention, but, unfortunately, they are frequently relied upon as the sole means to mitigate risk.

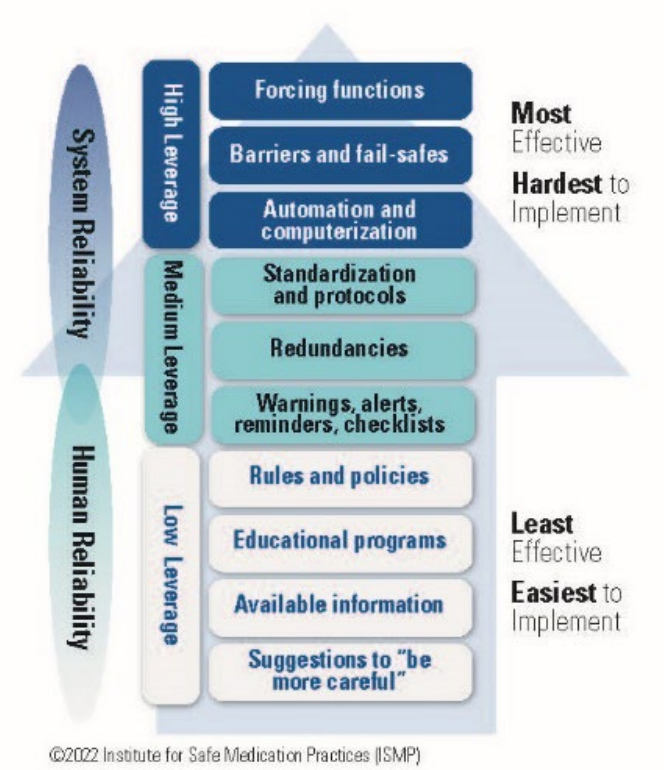


Figure 1. ISMP's Hierarchy of Effectiveness of Risk-Reduction Strategies.

In this report, a mix of high-, medium-, and low-leverage strategies are offered to help reduce the risk of errors identified during the analysis of reports submitted to CAMER.

Overall Reporting

Total Number of Reports

For the reporting period July 1, 2025 – June 30, 2026, licensees submitted a total of 27,161 reports (**Figure 2**). The reports were submitted by 3,420 pharmacies. There was a notable rise in reporting volume after the compliance date of September 1, 2025.

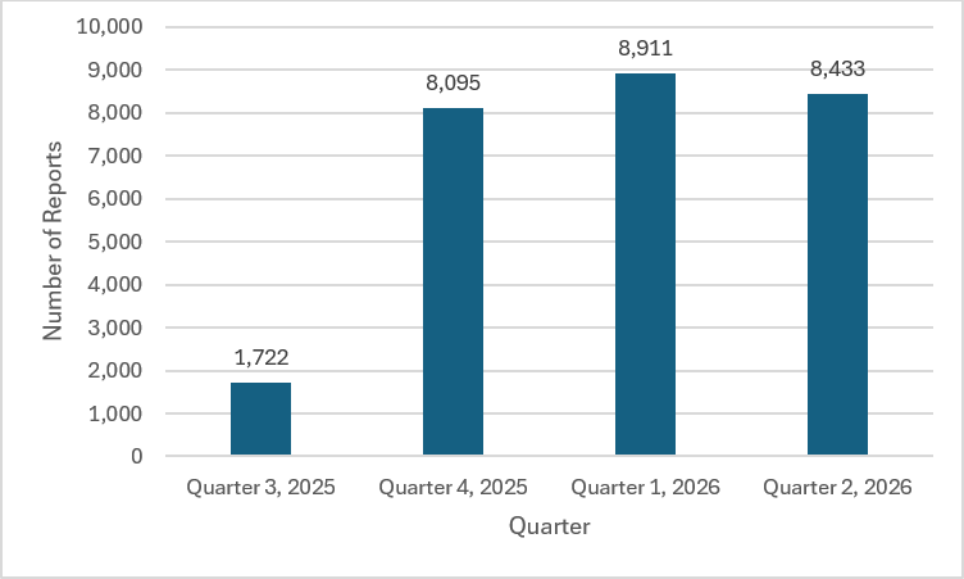


Figure 2. Reports submitted by quarter, July 2025 – June 2026 (N = 27,161).

Reports by Pharmacy Type

Reports were submitted by a total of 3,420 pharmacies. Most reports (n = 16,616) were submitted by community chain pharmacies (**Table 1**). **Table 2** provides the number of unique pharmacies submitting reports during the reporting period. Pharmacies self-select their type of pharmacy. During the reporting period, eight pharmacies asked to change their selected pharmacy type. As a result, the number of unique pharmacies reporting when broken down by pharmacy type has eight more pharmacies listed (n = 3,428) than the total number of unique pharmacies (n = 3,420).

Table 1. Reports submitted by pharmacy type, July 2025 – June 2026 (N = 27,161).

Pharmacy Type	Number of Reports	Percentage of Reports
Community chain pharmacy	16,616	61.2%
Non-chain community pharmacy	4,133	15.2%
Mail-order pharmacy	4,060	14.9%
Closed-door pharmacy	1,396	5.1%
Specialty pharmacy	642	2.4%
Hospital outpatient pharmacy	314	1.2%

Table 2. Number of unique reporting pharmacies by pharmacy type, July 2025 – June 2026 (N = 3,428).

Pharmacy Type	Number of Unique Pharmacies
Community chain pharmacy	2,399
Non-chain community pharmacy	657
Closed-door pharmacy	110
Specialty pharmacy	108
Mail-order pharmacy	87
Hospital outpatient pharmacy	67

Reports by Harm Score

Licensees are required to submit harm scores using the Agency for Healthcare Research and Quality's (AHRQ) harm scale. The large majority (94.3%, n = 25,620) of events were reported as not resulting in patient harm (**Table 3**).

Table 3. Agency for Healthcare Research and Quality (AHRQ) harm scores associated with reported events, July 2025 – June 2026 (N = 27,161). See Appendix A for the full definition of the harm scores.

Agency for Healthcare Research and Quality (AHRQ) Harm Score	Number of Reports	Percentage of Reports
No Harm	25,620	94.3%
Mild Harm	1,465	5.4%
Moderate Harm	56	0.2%
Severe Harm	8	0.03%
Death	12	0.04%

Twelve (0.04%) reports were categorized as resulting in death. The event narratives in eleven of the reports did not describe patient deaths. One narrative mentioned the death of a canine; however, it indicated that it was unknown if the death was related to the medication error.

Prescription was written for canine for mycophenolate 50 mg but mycophenolate 500 mg was dispensed. Pharmacy was informed of error. At this time, the cause of death is unclear, therefore we do not know if the medication error is what caused the pet's death.

Licensees also have the option to include a harm score using the scale published by the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) (**Figure 3**). Only 3,018 reports included answers to this optional question.

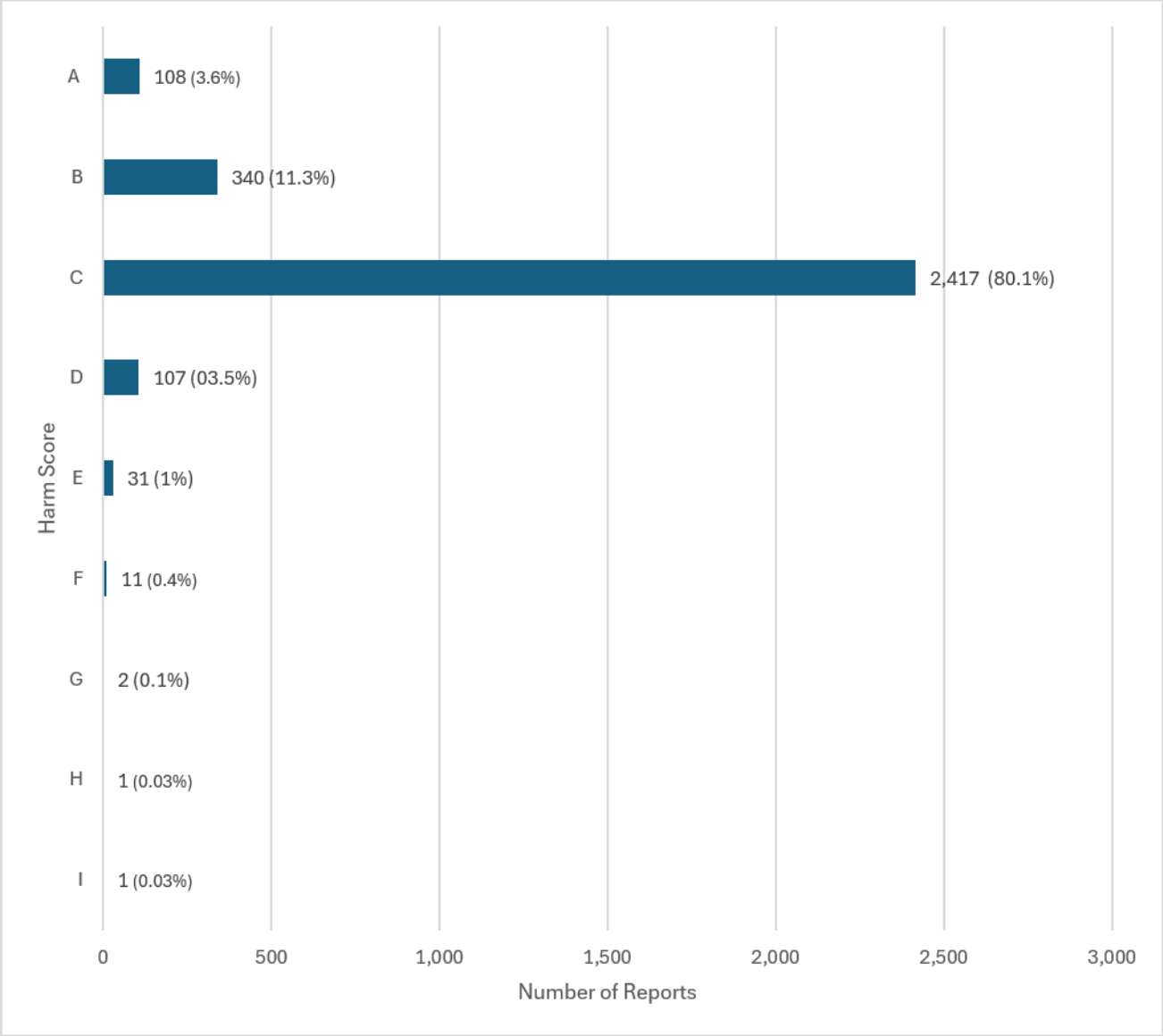


Figure 3. National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) harm scores associated with reported events, July 2025 – June 2025 (n = 3,018). Note: Licensees are not required to report a harm score using the NCCMERP scale. Only those reports that included a NCCMERP harm score are displayed (n = 3,018 of 27,161). See Appendix A for the full definition of the harm scores.

Reports by Pharmacy Staffing

The CAMER reporting form includes an optional question regarding pharmacy staffing at the time of the event. Twelve percent (n = 3,288 of 27,161) of reports included responses to this question (**Table 4**). Of those reports that included a response to this question, 85.3 % (n = 2,805 of 3,288) indicated the event occurred during a time when the pharmacy was operating with regular staffing and 12.9% (n = 425 of 3,288) of reports indicated the pharmacy was operating with less than usual staffing.

Table 4. Pharmacy staffing level at the time of the event, July 2025 – June 2026 (N = 3,288).

Staffing Level	Number of Reports	Percentage of Reports
Regular staffing	2,805	85.3%
Less than usual staffing	425	12.9%
Other	32	1%
More than usual staffing	26	0.8%

Reports by Patient Age

The majority of reported events involved adult (57.2%, n = 15,537) and older adult (33.6%, n = 9,133) patients. (**Table 5**).

Table 5. Age of patients involved in reported events, July 2025 – June 2026 (N = 27,161).

Patient Age	Number of Reports	Percentage of Reports
Birth to 1 month	50	0.2%
Greater than 1 month to 1 year	140	0.5%
Greater than 1 year to 12 years	1,617	6%
Greater than 12 years to 17 years	684	2.5%
Greater than 17 years to 65 years	15,537	57.2%
Greater than 65 years	9,133	33.6%

Reports by Event Type

The breakdown of the data by event type is presented in **Figure 4**. Wrong patient errors accounted for the largest share of reported events by event type (21.6%; n = 5,873). This is also the event type most frequently reported to ISMP by community pharmacies and consumers.

The four most frequently reported event types—wrong patient (21.6%; n = 5,873), wrong quantity (20.9%; n = 5,668), wrong drug (17%; n = 4,621), and wrong directions (16%; n = 4,340)—accounted for 75.5% (n = 20,502) of all events submitted during the reporting period.

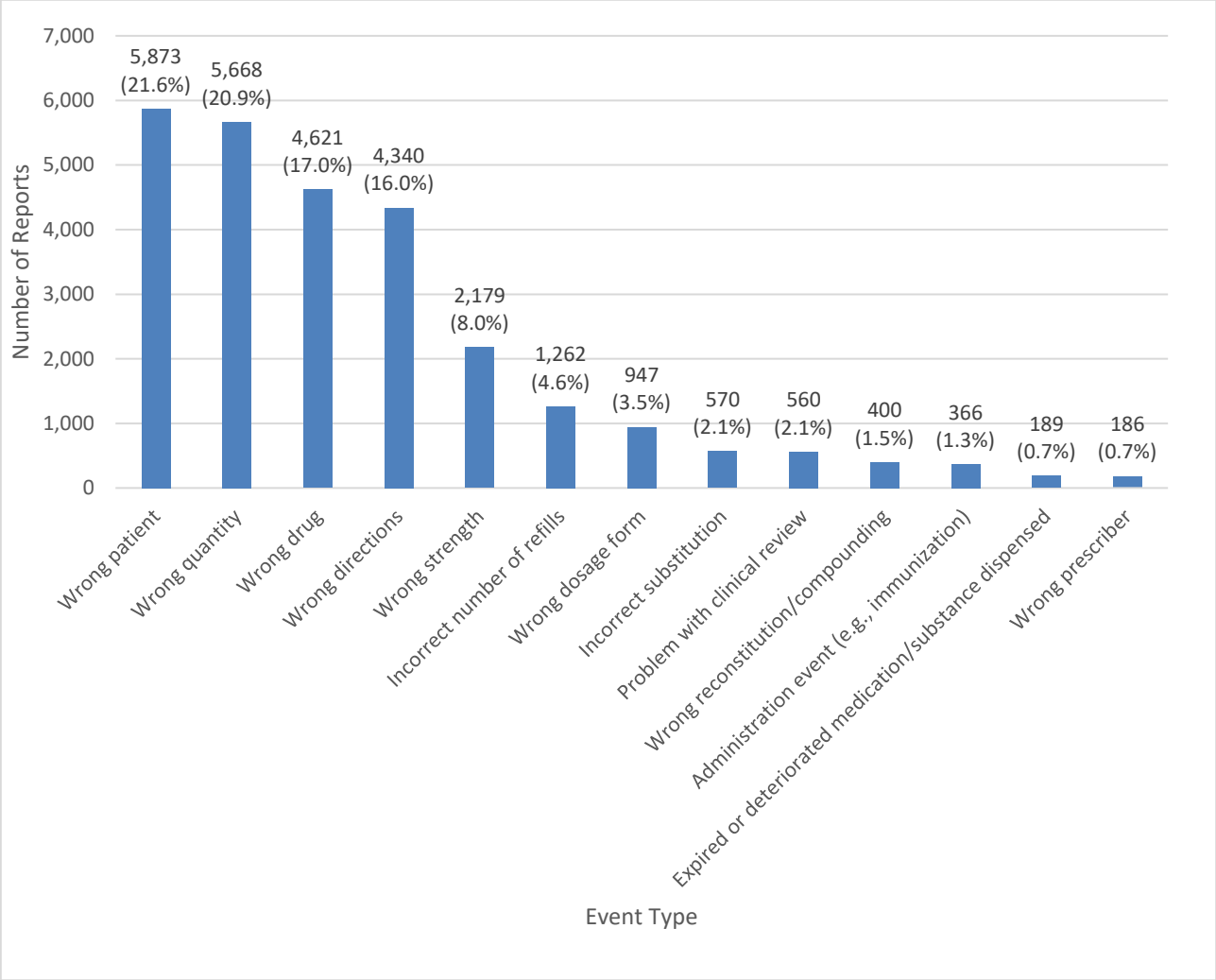


Figure 4. Reported events by event type, July 2025 – June 2026 (N = 27,161).

Wrong Patient Errors

Wrong patient errors were the most commonly reported type of error. As noted above, for the reporting period, licensees submitted 5,873 reports of wrong patient errors. The CAMER reporting form also provides an optional second level event type taxonomy for wrong patient errors. A small percentage (10.2%; n = 598 of 5,873) of wrong patient error reports included data for the wrong patient second level taxonomy (**Table 6**).

Table 6. Second level taxonomy choices for wrong patient events, July 2025 – June 2026 (N = 598).

Wrong Patient Second Level Taxonomy	Number of Reports	Percentage of Reports
Wrong patient bag given to customer	310	51.8%
Prescription placed into wrong customer's bag	175	29.3%
Wrong patient selected in the computer system	92	15.4%
Wrong patient label applied to medication container	21	3.5%

Licensees may select multiple contributing factors for each event (**Table 7**). More than half (58.9%; n = 3,457) indicated human factors contributed to the wrong patient event. Procedure/policy non-compliance (40.5%; n = 2,379) was the next most commonly reported contributing factor associated with wrong patient errors.

Table 7. Contributing factors reported with wrong patient events, July 2025 – June 2026 (N = 5,873). Note: Licensees may select more than one contributing factor per report.

Contributing Factor	Number of Reports	Percentage of Reports
Human factors	3,457	58.9%
Procedure/policy non-compliance	2,379	40.5%
Workflow	730	12.4%
Training	637	10.8%
Environment/space	469	8%
Other	425	7.2%
Technology/equipment	374	6.4%
Drug name, label, or packaging issue	262	4.5%
Staffing and scheduling	119	2%

Analysis of the errors submitted to both CAMER and the Institute for Safe Medication Practices National Medication Errors Reporting Program (ISMP MERP) reveals a number of additional ways this type of error occurs. These include:

- Working on more than one patient's prescription at a time
- Patients with similar or the same names
- Flawed patient identification processes throughout the dispensing process, including at the point of sale and shipping
- Staff believing they know the patient by sight
- Not reviewing the medication with the patient
- Distractions

One wrong patient error submitted was reported to have resulted in death (n = 1); however, the event narrative did not describe a patient death. While there were no reports of serious harm, 11 reports indicated patients experienced moderate harm. Examples of reports of moderate harm submitted to CAMER include:

*Patient was supposed to get famotidine tablets but instead somebody else's bottle was in their bag. The medication was cyclobenzaprine. They took one tablet and called the pharmacy to report the discrepancy and inform them he had taken 1 tablet in addition to tra**MAD**ol and that they felt dizzy.*

Patient's spouse notified pharmacy that patient has received the wrong person's medication. They were supposed to receive Mounjaro [tirzepatide] *5 mg, but was dispensed another patient's Mounjaro 15 mg. They already injected one dose. Later, the patient began throwing up. Patient was advised to contact their physician if side effects such as palpitations or low sugar level occur.*

Some of the event narratives in reports indicating moderate harm described that the patient sought urgent or emergency care. Examples of reports submitted to CAMER include:

Patient was prescribed Zepbound [tirzepatide] *2.5 mg. The pharmacist on duty dispensed another patient's Zepbound 10 mg medication to this patient. They took the first dose and have been experiencing nausea/vomiting and abdominal pain ever since. They went to urgent care where they were prescribed Zofran* [ondansetron]*. The patient continued to not feel well, so was advised to go to emergency department (ED).*

Mounjaro was dispensed to the wrong patient. Patient thought they were getting their new prescription of insulin and injected it the next day. Patient experienced high blood pressure, nausea, vomiting, headache, tightness/pain in the throat, balance issues, and body stiffness. Patient eventually was taken by ambulance to a hospital for evaluation.

*It was reported that at the pharmacy a patient was given another patient's prescription, dil**TIAZ**em. Once brought home the patient administered 1 capsule and was later found in the bathroom on the floor. They thought the patient had a seizure and brought the patient to the ED.*

Customer picked up medications and also received one of other patient's medication, finasteride. Per customer, due to impaired vision, customer did not check bottle label, or the pill appearance. Customer took one pill shortly after leaving pharmacy store. The customer developed a swollen tongue, experienced symptoms like seizure, and passed out. They were then brought to ED.

The patient came in to pick up their amoxicillin prescribed for a tooth infection. They started to take the medication. The patient was feeling tired and having trouble breathing. The patient's daughter then checked to see which medication they were taking and noticed that it had a different name on the bottle and it was not amoxicillin. Instead, it was cetirizine. The daughter stated that she was worried and was going to take the patient to the hospital.

Additionally, pharmacies may compromise the security and confidentiality of protected health information when wrong patient errors occur. Confidential information is inadvertently disclosed to the person who receives another patient's medication, because pharmacy labels include the patient's full name and drug name. Patients may be especially distressed if the medication is sensitive, such as a psychiatric drug or a medication used to treat human immunodeficiency virus (HIV).

Recommendations for Pharmacies

To help reduce the risk of wrong patient errors, pharmacies should use a standard protocol to verify a patient's identity when receiving a prescription to be filled, responding to patient-specific questions, providing filled prescriptions to patients at the point of sale, when delivering prescriptions to the patient's home, and prior to administering vaccines or other treatments. This protocol should include the use of at least two identifiers (e.g., full patient name, date of birth) to verify the patient's identity with the patient or caregiver, as well as with the provider or transferring pharmacy if receiving a telephone order.

The workflow should be designed to have pharmacists, pharmacy technicians, and clerks compare the stated identifiers to either the prescription, pharmacy information system, prescription label, or vaccine label. For a higher-leverage strategy, pharmacies should employ technological enhancements that require pharmacy staff to electronically verify or enter the patient's identifiers before the register transaction can be completed.

Staff should employ use of bins or baskets to keep all prescriptions associated with one patient together and work on only one patient's prescriptions at a time to prevent mix ups.

At the point of sale, pharmacy staff should review the prescription label and contents of each prescription container with the patient to verify that the patient's name and medications are correct. This should happen even if it requires opening the prescription bag.

Pharmacy managers should periodically perform quality control checks by observing the patient identification processes at various points in the pharmacy workflow to ensure adherence to the standardized work practices.

Recommendations for the Board

Because wrong patient errors are common and can cause significant harm, ISMP recommends that Board inspectors ask pharmacies about their patient identification processes and, when on site, observe how these processes are performed. The ISMP Targeted Medication Safety Best Practices For Community Pharmacy provides recommendations for establishing a standard protocol to verify patient identity.

Wrong Drug Errors

Wrong drug errors were the third most reported type of errors. As noted above, for the reporting period, licensees submitted 4,621 reports of wrong drug errors. The CAMER reporting form also provides an optional second level event type taxonomy for wrong drug errors. One-fifth (21%; n = 970 of 4,621) of the wrong drug reports included data for the wrong drug second level taxonomy (**Table 8**).

Table 8. Second level taxonomy choices for wrong drug events, July 2025 – June 2026 (N = 970).

Wrong Drug Second Level Taxonomy	Number of Reports	Percentage of Reports
Other	538	55.5%
Wrong medication/substance in container	225	23.2%
Wrong medication/substance on label	134	13.8%
Incorrectly combined medications/substances in container (mixed contents)	73	7.5%

Licensees may select multiple contributing factors for each event (**Table 9**). More than half (51.9%; n = 2,398) of the submitted reports indicated human factors contributed to the event. Procedure/policy non-compliance (26.3%; n = 1,216) and drug name, label, or packaging issues (25.3%; n = 1,168) were the next most commonly reported contributing factors associated with wrong drug errors.

Table 9. Contributing factors reported with wrong drug events, July 2025 – June 2026 (N = 4,621). Note: Licensees may select more than one contributing factor per report.

Contributing Factor	Number of Reports	Percentage of Reports
Human factors	2,398	51.9%
Procedure/policy non-compliance	1,216	26.3%
Drug name, label, or packaging issue	1,168	25.3%
Workflow	619	13.4%
Technology/equipment	554	12%
Environment/space	476	10.3%
Training	347	7.5%
Other	201	4.3%
Staffing and scheduling	146	3.2%

Analysis of the wrong drug errors submitted to both CAMER and the ISMP MERP reveals a number of ways these types of error occur. These include:

- Look- and/or sound-alike drug names (e.g., risperi**DONE** - r**OPINIR**ole, hydr**OXY**zine - hydr**ALAZINE**)
- Look-alike drug packaging and labeling
- Returning medications to the wrong stock bottle
- Failure to use barcode scanning during the dispensing process
- Automated transcription errors

Five wrong drug errors were reported to have resulted in death (n = 2) or severe harm (n = 3). However, the error narratives of the 2 patient death reports did not describe a situation in which a patient died. Similarly, the event narratives in 2 of the 3 reports of severe harm did not describe cases of patient harm. In the third event, a pet experienced harm that required hospitalization.

A pet was recently prescribed Vetmedin [pimobendane] *for congestive heart failure but received ketoconazole 200 mg instead. Ketoconazole 200 mg was 5-times the typical dose for this pet's weight. The pet was hospitalized for liver failure. Upon further investigation, the error was a result of rebilling which generated a new prescription label that was then affixed to the incorrect prescription.*

Licensees submitted fourteen wrong drug errors with the harm score of moderate harm. In four of those events, patients sought care and/or monitoring at a hospital. Examples of reports submitted to CAMER include:

Physician wrote for levothyroxine 125 mcg take 1 tablet by mouth 5 days per week. Prescription was typed and labeled correctly but the pill was dispensed for clonidine 0.2 mg tablet in the amber bottle. Patient felt dizziness, blurring, headache, low blood pressure, and felt sick causing them to go to the hospital.

Patient found and took 1 pill that appeared to be amlodipine mixed in the bottle of their medications. The pharmacy confirmed that 2 pills were mixed in the bottle. Patient went to the hospital because they could not breathe and were shaking. Oxygen saturation was below 90.

*Prescription bottle labeled as met**FORMIN** 500 mg, but contained gabapentin 300 mg. Patient took 4 doses for 2 days and ended up in the ED.*

When prescriptions are dispensed but not picked up, they must be returned to stock. Errors can happen during this process. Both ISMP MERP and CAMER have received reports of errors that resulted from the breakdown in the return to stock (RTS) process. Below is an example from CAMER:

Accuracy scan was completed correctly but wrong drug was dispensed to patient. Possible root cause may be RTS vial used that was incorrectly labeled. Two different checks did not catch the mistake. Patient only noticed after a full month of taking the wrong medication since their next fill looked different (was correct). Patient went to their doctor right away after discovering the error.

Analysis of data identified that the automated transcription or typing functionalities in pharmacy dispensing systems are not entering the correct medication or dosage form at times. If these errors are not caught during quality checks and/or pharmacist verification, they will reach patients and possibly cause harm. One example from CAMER follows:

The pharmacy received a prescription for sodium sulfacetamide 10% wash. It was [automatically] *typed as sodium sulfacetamide 10% lotion. The error was not corrected during RPh check and dispensed to the patient*.

Recommendations for Pharmacies

When new products are first received in the pharmacy, conduct a review to identify any unanticipated look- and/or sound-alike drug name concerns. Purchase look-alike products (or one product of the problematic pair) from different manufacturers to reduce the number of look-alike containers. Store medications with problematic, error-prone, look- and/or sound-alike names in

separate physical locations away from each other. If the products are separated in storage, make sure staff are aware that they have been separated and where to locate the medications.

Install and use barcode verification during the prescription filling process to scan each drug or vaccine package or container (e.g., bottle, carton) used to fill a prescription, including manufacturer cartons or bottles that may be dispensed to a patient. Avoid scanning only one item or one item multiple times for prescriptions that require multiple manufacturer containers/cartons. Regularly review compliance and other metric data to assess utilization and effectiveness of barcode scanning safety technology (e.g., scanning compliance rates, bypassed or acknowledged alerts).

Implement a standard workflow process to ensure pharmacy staff generate prescription labels for one patient at a time and then fill that patient's prescription(s) before printing labels for or working on another patient's prescription(s).

Maximize the use of technology to prevent errors during the RTS process. Apply specific labels that include the drug name, dosage strength, expiration date, description (e.g., tablet shape, color, imprint code), and a barcode (to be used when filling a subsequent prescription) to prescriptions that are marked for RTS. Utilize barcode verification throughout the RTS process to ensure the correct RTS label is placed on the correct RTS prescription. Develop functionality to automate and guide the use of available RTS medications to fill prescriptions before reverting to sending prescriptions to an automated dispensing system for filling.

Do not return medications from filled prescriptions into manufacturer stock bottles that have been opened or cells within automated dispensing technology.

Periodically perform quality control checks by observing the dispensing processes, including barcode verification during dispensing and RTS, to ensure adherence to standardized work practices.

Wrong Directions Errors

Wrong directions errors were the fourth most commonly reported type of error. As noted above, for the reporting period, licensees submitted 4,340 reports of wrong directions errors. The CAMER reporting form also provides an optional second level event type taxonomy for wrong directions errors. Nearly one-quarter (24.4%; n = 1,061 of 4,340) of wrong directions reports included data for wrong directions second level taxonomy (**Table 10**).

Table 10. Second level taxonomy choices for wrong directions events, July 2025 – June 2026 (N = 1,061).

Wrong Directions Second Level Taxonomy	Number of Reports	Percentage of Reports
Incorrect frequency	380	35.8%
Other	348	32.8%
Higher dose than prescribed	122	11.5%
Lower dose than prescribed	109	10.3%
Incorrect route of administration	69	6.5%
Wrong unit of measure included	21	2%
Wrong indication selected	12	1.1%

Licensees may select multiple contributing factors for each event (**Table 11**). The majority (70.6%; n = 3,062) of reports indicated human factors contributed to the event, followed by procedure/policy non-compliance (23.9%; n = 1,039).

Table 11. Contributing factors reported with wrong directions events, July 2025 – June 2026 (N = 4,340). Note: Licensees may select more than one contributing factor per report.

Contributing Factor	Number of Reports	Percentage of Reports
Human factors	3,062	70.6%
Procedure/policy non-compliance	1,039	23.9%
Workflow	465	10.7%
Environment/space	368	8.5%
Training	362	8.3%
Technology/equipment	346	8%
Other	264	6.1%
Staffing and scheduling	195	4.5%
Drug name, label, or packaging issue	188	4.3%

In addition to the known risks from manual transcription, pharmacy dispensing systems' automated transcription and/or typing functionalities appear to be contributing to wrong direction errors. Either the systems are not automatically populating a prescription in the pharmacy dispensing system with the Sig from the electronic prescription, or the system has selected/printed the incorrect directions. Some factors that have been identified during analysis of events submitted to CAMER and ISMP MERP include:

- The electronic prescription from the prescriber is not formatted correctly to populate the Sig, requiring manual transcription
- Generic instruction may be in the Sig field of the prescription while detailed instructions are located in an ancillary comments or notes field
- The pharmacy dispensing system does not transcribe the Sig from electronic prescriptions
- The Sig is translated incorrectly into another language from English

When wrong directions errors reach patients, they can cause significant dosing errors and patient harm and death. One example of this is mix-ups between daily and weekly administration of methotrexate (see the Errors Involving Methotrexate section below). For the reports submitted to CAMER, two wrong directions errors were associated with the harm score of death. The event narratives, which appeared to be duplicates, did not describe the death of a patient. Also, there were no reports of these errors resulting in severe harm.

However, there are reports of patients suffering harm as a result of wrong directions errors. The following is an example from CAMER:

Prescription for minoxidil 2.5 mg originally written as take 1 tablet by mouth every other day, was entered as take 1 tablet by mouth once daily and dispensed. Patient took the medication with the increased frequency for about 2 weeks and started to experience dizziness.

As mentioned above, pharmacies have been reporting errors related to automated transcription/typing. These errors may not be caught during dispensing or pharmacist verification. Below is an example from CAMER:

The pharmacy received a prescription with the prescribed directions: Inject (5 mg) by subcutaneous route every week, The prescription was [automatically] *typed with the directions: Inject 1 pen under the skin once week. The Zepbound Kwikpen is a multi-dose pen, not single use. This was not addressed during pharmacist check and was shipped to the patient*.

Errors involving the translation of prescription information from English into another language have also been reported. The following are examples of reports submitted to CAMER:

Patient presented to the pharmacy stating that the directions on their recently picked up prescription were incorrect. Instead of four times a day, the label instructed them to take the medication 3 times a day. The sig on the bottle read "Tome una tableta por via oral en la manana at en la noche and before bedtime." The sig verified by the pharmacist read "Take 1 tablet by mouth in the morning at noon in the evening and before bedtime." The sig on the e-script read "Take 1 tablet by mouth in the morning and 1 tablet at noon and 1 tablet in the evening and 1 tablet before bedtime." It was not clear how the sig that was verified by the pharmacist converted to the sig that was printed on the prescription label.

Patient only received 1 box of Cosentyx [secukinumab] instead *of the prescribed 2 boxes, directions on label were in Spanish "inyected una pluma (300 mg)" for each dose but should be "inyecte dos plumas", patient and wife confirmed patient was correctly injecting 2 pens for each dose.*

A new prescription for Lantus [insulin glargine] *was received for once-daily dosing. When a technician transcribed the prescription, they inadvertently included 2 veces in the Spanish label directions, which translated to twice-daily. This was not identified by the pharmacist during verification, and the Lantus was ultimately dispensed and shipped to the patient with the incorrect label directions.*

Recommendations for Pharmacies

Pharmacies should thoroughly test and routinely monitor dispensing system transcription and translation functions to ensure prescription information is accurately converted and displayed. Discrepancies should be reported to the product vendor.

Review prescription directions from the patient's perspective to ensure the instructions are clear, understandable, and likely to be interpreted as intended. For example:

- Use explicit, clear, simple, and concise wording. Express the route of administration in patient-friendly terms. For example, use "under the tongue" rather than sublingually, "by mouth" rather than orally, "into the nose" rather than intranasally, "into the eyes" rather than intraocularly, and "under the skin" rather than subcutaneously.
- Use metric units (e.g., mL) for oral liquids. Never use apothecary or household units of measure (e.g., teaspoon).
- Only include the unit of measure used by the patient/caregiver to measure and/or administer the medication in its specific dosage form (e.g., number of tablets, puffs, sprays, drops, milliliters [mL], full pen). For example, "Take 1 tablet in the morning" or "Inject 1 pen under the skin in the morning."
- Ensure the dosing instructions on the pharmacy prescription label match the dose marking(s) on the provided dosing device, if applicable, and how the prescribed dose is measured and delivered.
- Do not use multiple units of measure or combine both the number of dosage units and the dosage strength (e.g., take 2 mg [4 mL], 2 tablets [4 mg]).
- Use the Universal Medication Schedule (UMS) with specific standardized time periods (i.e., morning, noon, evening, bedtime). Avoid expressing the frequency as times per day (e.g., twice a day), hourly (e.g., every 12 hours), or as a precise hour of the day (e.g., 8 AM). For example, use "Take 1 tablet by mouth in the morning and 1 tablet at bedtime" rather than "Take 1 tablet by mouth twice daily."

At the point of sale, pharmacy staff should review the prescription label and contents of each prescription container with the patient assessing the directions for clarity based on how the patient is likely to comprehend and act on the provided instructions.

Recommendations for the Board

Require pharmacies to thoroughly test new technology or prescription processing automation before implementation, this includes automated transcription and translation functionalities. Also, require them to continually monitor the safety and accuracy of automation applied to prescription directions. The pharmacy's quality assurance programs should detail how they will conduct this monitoring and prioritize system improvements.

Other Recommendations for the Board

Errors Involving Methotrexate

Methotrexate is a folic acid antagonist that was originally approved to treat a variety of oncologic and non-oncologic conditions. For most nononcologic indications, a low dose of methotrexate is

administered weekly—for example, 7.5 mg per week when initiating treatment for rheumatoid arthritis.

Since early 1996, harmful or fatal errors with low-dose oral methotrexate have been reported to ISMP. These errors have often led to serious methotrexate overdoses that caused moderate to severe harm, including death.

Licensees submitted sixty-six reports involving methotrexate to CAMER. Twenty-four of these were reported as wrong directions errors. Three reports indicated a mix-up between weekly and daily administration frequencies. One of the events resulted in moderate patient harm while the other two resulted in no harm. Fifteen reports indicated an error occurred with the directions but did not provide enough details to determine what error had occurred. None of the remaining wrong directions errors involving methotrexate resulted in patient harm.

The following are examples from CAMER:

Methotrexate order was labelled to be administered daily rather than weekly.

Pharmacy received a prescription for methotrexate for 2 tablets in the morning and 2 tablets in the evening once a week, It was processed and verified as 2 tablets in the morning and 2 tablets in the evening leaving out the weekly part. Called patient who has been taking it for over 3 years, patient was taking it correctly as weekly dose.

Errors involving the mix-up of weekly versus daily dosing of methotrexate can also originate during the prescribing stage of the medication use process. One pharmacy reported the following good catch to CAMER:

Error discovered at final check by pharmacist. The e-script order was for methotrexate 2.5 mg tablet #150 tabs, sig: 5 tabs(s) oral daily x1 month. RPh spoke with provider; it should have been 5 tabs weekly #20 tabs.

While no reports involving methotrexate reported to CAMER were associated with severe patient harm or death, ISMP continues to receive reports of methotrexate errors, with multiple reports of patient deaths this year. In one case that occurred in California, an older patient with end-stage renal disease receiving hemodialysis was prescribed "methotrexate 2.5 mg - Take 2 tablets by mouth one time per week" by a dermatologist for psoriasis. But the patient wrote out the instructions in Japanese as "take 2 tablets daily" and took this dose at home for 6 days. The patient was admitted to the ICU with oral ulcerations, pancytopenia, respiratory failure, pneumonia, septic shock, and multiorgan failure, and died 10 days after admission.

Recommendations for Pharmacies

To help reduce the risk of frequency errors with methotrexate, technology system defaults and hard stops should be implemented. Pharmacy dispensing systems should be designed to use a weekly dosage regimen default when prescriptions for oral methotrexate are entered. Systems should require a hard-stop verification step for an appropriate oncologic indication for all oral methotrexate prescriptions with directions for daily use. For systems that cannot provide a hard stop, pharmacist should clarify all daily orders for methotrexate.

To mitigate the risk of catastrophic outcomes, pharmacies should not dispense more than a 28-day supply of oral methotrexate at a time.

Ask patients which day of the week they plan to take this medication. Include the selected day in the patient instructions on the pharmacy label.

Set point of sale systems to prompt for pharmacist counseling for every oral methotrexate prescription or refill.

Pharmacists should assess whether patients and/or caregivers understand the dosing regimen and that they will not confuse weekly versus daily administration.

Provide clear written AND verbal instructions for oral methotrexate. Use the teach-back method when providing patient education. Be sure to address the following topics:

- The specific day of the week the patient plans to take this medication
- The dosing schedule. Emphasize the danger of taking extra doses, and emphasize that the medication should not be taken "as needed" for symptom control
- Signs of toxicity and with whom they should communicate for rescue treatment

Implement a monitoring plan to contact the patient within 2-3 days following them receiving their prescription for methotrexate. Assess how they are taking the medication and if they are experiencing any adverse effects.

Recommendations for the Board

Mandate the provision of patient education for methotrexate and other select high-alert medications.

Pharmacy Self-Assessment of Safety Practices

The Board should consider incorporating safe systems and medication safety best practices in the Self-Assessments for Pharmacies (https://www.pharmacy.ca.gov/licensees/facility/self_assess.shtml). ISMP has a self-assessment for community pharmacies that can be used as an initial template.

Modification of Data Elements for CAMER Reports

ISMP proposes collaborating with the Board to evaluate the effectiveness of the data elements currently included in the CAMER report form. The objective is to identify enhancements that improve data quality, collection and analytical value, and to provide the Board with specific, evidence-based recommendations.

Appendix A – Harm Score Definitions

Definitions of the Agency for Healthcare Research and Quality's (AHRQ) harm scale (Source: PSO Privacy Protection Center; https://www.psoppc.org/api/dlms/downloadDocument?groupId=824):

- Death
- Severe Harm: Bodily or psychological injury (including pain or disfigurement) that interferes substantially with functional ability or quality of life
- Moderate Harm: Bodily or psychological injury adversely affecting functional ability or quality of life, but not to the level of severe harm
- Mild Harm: Bodily or psychological injury resulting in minimal symptoms or loss of function, or injury limited to additional treatment, monitoring, and/or increased length of stay
- No Harm: Event reached the patient, but no harm was evident

Definitions of the NCCMERP harm scores (Source: National Coordinating Council on Reporting and Prevention; Categorizing Medication Errors):

A. Circumstances or events that have the capacity to cause error
B. An error occurred but the error did not reach the patient
C. An error occurred that reached the patient but did not cause patient harm
D. An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
E. An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention
F. An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization
G. An error occurred that may have contributed to or resulted in permanent patient harm
H. An error occurred that required intervention necessary to sustain life
I. An error occurred that may have contributed to or resulted in the patient's death