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ISMP

Acute Care
ISMP Medication Safety Alert!®
Educating the Healthcare Community About Safe Medication Practices

The texting debate: Beneficial means of communication or safety and security risk?

The debate regarding whether healthcare providers should be allowed to send orders via text messages continues in healthcare. Technology-savvy healthcare professionals have embraced the convenience and usefulness of this 21st century form of communication, while opponents feel it is too informal to properly document patient care and worry about data security and the potential impact on patient safety. Both sides of the debate offer compelling viewpoints, making it a challenge to promulgate best practices.

Even The Joint Commission (TJC) has wavered on the topic. In 2011, the accrediting agency published its opposition to the practice, citing concerns regarding unsecure texting platforms, sender authentication issues, and document retention problems.[1] But as more secure texting platforms emerged, TJC lifted its ban on texting orders in May 2016, permitting the practice in accordance with laws and professional standards as long as the required components of an order were included, and the message was sent via a secure platform. This included a sign-in process; encrypted messaging; delivery and read receipts; date and time stamps; contact lists for senders and receivers; and policies on authentication, documentation, and message retention.[1] However, ISMP subsequently contacted TJC about several safety concerns we had with texted orders, and in December 2016, TJC, in collaboration with the Centers for Medicare & Medicaid Services, issued a clarification that again prohibited the use of even secure text messaging of orders,[2] citing primarily concerns related to safety rather than data security.[3] Today, many in healthcare feel that the text messaging of orders is unlikely to go away, despite the latest edict, given that it is just too convenient.[3-5]

Scope of Texting Orders

An accurate estimate of the prevalence of texting orders in healthcare today is unknown. A survey of 91 members of the College of Healthcare Information Management Executives in June and July 2011 found that 96.7% allowed physicians to text orders to the nursing staff.[6] However, this limited survey was conducted several months before TJC first published its opposition to this practice, and it is uncertain whether the subsequent changes in TJC's position on texting orders has had a significant impact on its use.

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Table 1. Examples of unclear medication orders using common text-messaging abbreviations

Abbreviation	Actual Order	Intended Meaning	Confusion or Error
2day	Slomag [sic] 64 mg TID **2day**	**today**	**for 2 days**
2	diclofenac 1% gel 4 g **2** right knee QID PRN	**to**	**2** g
b/4	Carafate 1 g PO **b/4** meals and hs	**before** meals and at bedtime (4 doses)	**with 4** meals and at bedtime (5 doses)
3D	ibuprofen 600 mg PO **3D**	**3 times daily**	**for 3 days**
MT	After bag **MT**, ↓ 100 mL/h	**empty**	Order too ambiguous and had to be clarified

20th Annual ISMP Cheers Awards

Each year, ISMP celebrates individuals and organizations that have set a standard of excellence in the prevention of medication errors during the previous 12 months. Nominations for this year's **Cheers Awards** will be accepted through **September 9**. ISMP accepts outside nominations, including self-nominations. The prestigious awards spotlight efforts from all healthcare disciplines, including nursing, medicine, and pharmacy, and winners have represented all practice areas, including acute care, long-term care, ambulatory care, and community pharmacy settings. To submit a nomination, visit: www.ismp.org/sc?id=1777.

SAFETY briefs

HIGH-ALERT

Carfentanil can present danger to staff treating overdose victims. Chances are you have recently heard about carfentanil. This is a synthetic opioid related to fenta**NYL** that has been receiving increasing media attention due to its implication in multiple fatal overdoses. It is approximately 100 times more potent than fenta**NYL** (and 10,000 times more potent than morphine). It is normally used in veterinary medicine as an anesthetic in large animals such as elephants and horses. Heroin or cocaine may be laced with this drug. Caring for patients who have overdosed on carfentanil is unique in comparison to other opioid overdoses, and some hospitals are finding they are not prepared to manage these situations and types of patients.

There are two unique caveats to consider when treating patients who have overdosed on carfentanil. First, patients who have taken this extremely potent opioid require much higher doses of naloxone than those used to treat heroin or other opioid overdoses. First responders typically have a limited supply of naloxone, but they are finding some victims are not responding

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Risks Associated with Texting Orders

Opponents of texting orders cite potential issues with security, authentication, documentation, and patient safety. While some of the security, authentication, and documentation issues may be mitigated by newer texting platforms currently available for use, many of the patient safety issues remain.

Security, Authentication, and Documentation Issues

Security. The texting of medical orders can lead to violations of the Health Insurance Portability and Accountability Act (HIPAA) if protected health information (PHI) is not properly safeguarded.[7,8] HIPAA defines the security measures required for electronic PHI related to access, audits, integrity, authentication, and transmission. While HIPAA does not expressly prohibit the sending of PHI by text, the standards require any system used to transmit PHI to restrict its access, protect its integrity, and guard against unauthorized access.[9] Typical cell phone text-messaging systems, which use short message service (SMS) technology, satisfy few, if any, of these HIPAA requirements.[8] Cell phones are typically unsecure devices, even when protected by passwords which can be easily decoded, exposing all text messages, even those previously deleted.[5,7] Typical text messages are not encrypted, do not facilitate sender and receiver authentication, and are often stored in unsecured servers or phones of the sender and receiver.[10] But even if the phone's SMS texting system encrypts the message, it is usually not strong enough for PHI.[5] Also, if a phone is lost, stolen, or recycled, or if a healthcare provider accidently forwards the text to personal contacts or sends it to the wrong person, PHI will be compromised.[5,8]

Sender and receiver authentication. Orders that are texted often do not provide the recipient with the ability to verify the identity of the provider sending the text,[9] thus exposing the organization to possible fraudulent orders. There is also a risk if the sender mistypes the recipient's phone number, which confounds the fact that there is no way for the sender to verify the intended recipient, or to confirm that the recipient has received the texted order.[11] The recipient's phone could be turned off or unable to get a signal.

Documentation. Text messaging of orders raises concerns with record retention. There is no good way to keep the original message as validation of what must then be transcribed into the medical record.[5]

Safety Issues

Order clarity and completeness. The informal nature of text messaging increases the risk of miscommunicating an order, particularly a medication order. First, text messaging is often accomplished using abbreviated terminology, which has led to a new chapter in the error-prone abbreviation saga. ISMP has received a few reports of confusion and medication errors stemming from the improper use of common, ambiguous abbreviations that are often used during texting. In fact, texting abbreviation habits are spilling over into handwritten, verbal, and free-text electronic orders. For example, an order to give a drug TID "2day" was initially misinterpreted to give the medication TID for "2 days," while the intended meaning was to give it TID "today." Additional examples of errors or confusion reported to the ISMP National Medication Errors Reporting Program (MERP) related to common texting abbreviations can be found in **Table 1** (page 1).

Next, because most texted orders must be entered as free-text (rather than selecting drugs and doses from a drop-down menu), misspelling the drug or patient name is possible. Furthermore, any medical terms, approved abbreviations, drug names, or even patient names that are used may be autocorrected by the phone since they are unlikely to be in the phone's dictionary.[11] This unintended autocorrection could lead to incorrect entries which, if unnoticed by the prescriber, could lead to a delay in care, if the order must be clarified, or to a clinically significant error. For example, the wrong drug may be dispensed and administered if a spelling error occurs or if the phone autocorrects the entry to a similar drug name. Or, a medication could be dispensed and administered to

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quickly and are requiring multiple doses of the drug to reverse the effects. Thus, naloxone may not work right away, and the patient may require ongoing resuscitation until it does. Secondly, carfentanil is so potent that exposure to even a miniscule amount could prove fatal if someone accidentally touches (it is absorbed through the skin) or inhales it. Healthcare workers need to wear personal protective equipment around possible drug overdose victims, including gloves, face masks, and eye protection to prevent accidental exposure and absorption of the carfentanil (www.ismp.org/sc?id=2941). One emergency department (ED) nurse told us that staff were caught completely off guard when a recent patient came into the ED. Nurses thought a gravel-looking substance on the patient was dirt and brushed it off her and the bed. They did not realize it was carfentanil. Luckily, they were wearing gloves; otherwise, they could have become victims themselves.

ON-Q pump for nerve block attached to IV line. An elastomeric pump (**ON-Q** device) infusing a local anesthetic was purposefully connected to a peripheral intravenous (IV) line by an alert, hospitalized patient. He was receiving a continuous nerve block for pain management of an open fracture of the calcaneus (heel bone). He was in tremendous pain and attempted to help manage his pain by giving himself the drug from the ON-Q device IV. Fortunately, the patient's nurse quickly identified the misconnection and took appropriate action. Anesthesia was notified, the patient was monitored, and the ON-Q pump was discontinued due to concern for compliance.

It is likely that many hospitals are seeing increased use of nerve blocks with local anesthetics to reduce opioid use. Keep in mind that, accidental IV infusion of local anesthetics, including ropivacaine, is concerning due to the potential for significant systemic toxicity, including cardiotoxicity. Therefore, increased awareness of patient safety concerns with elastomeric devices and regional anesthesia is needed to prevent the likelihood of similar events.

ON-Q devices are also used for epidural infusions, but it is unclear whether the requirement for new neuraxial connectors (NRFit) will affect elastomeric pumps used

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PLEASE take our survey on texting medical orders—see pages 5-6!

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the wrong patient if a spelling error occurs with the patient's name. Errors are also possible if a phone's voice-recognition feature is used to transcribe a verbal message into a text message, as the technology may mishear words given differences in dialects, pronunciation, voice quality and volume, and background noise. Sometimes this feature even "hears" others that are talking nearby, resulting in unintended text being recorded.

Free-text or verbal orders that lack the prompts often found in electronic prescribing systems may also be incomplete, missing critical components of an order, such as the route of administration or, for pediatric weight-based medications, the mg/kg dose.

Clinical decision support. Texting orders bypasses all the clinical decision support and alerts offered by a computerized prescriber order entry (CPOE) system that can help healthcare providers ensure they are providing the best option for the patient given his or her current medication regimen, medical conditions, age, weight, and allergies. Furthermore, during the texting process on a cell phone, the prescriber does not have access to the patient's medical record (e.g., complete medication list, laboratory values) to obtain or confirm information that might be needed during the prescribing process.

Transcription. With texted orders, nurses or pharmacists often must manually transcribe the orders into the patient's electronic medical record—an extra step that increases the risk of an omission or transcription error. Order clarifications may also be difficult if conducted via text messaging. It is also possible that a delay in text order transcription may result in a delay in patient care, or a duplicate order if an order is entered via CPOE in addition to a text order.

Distractions from incoming texts or phone calls. Cell phones are typically busy devices, frequently receiving calls, texts, social media notifications, emails, or other alerts, which could be distracting to healthcare providers who are attempting to text an order. Such a case that led to a serious error was reported in our November 29, 2012 newsletter.[12] While a medical resident was using her smartphone to discontinue anticoagulation, she was interrupted by a personal text message before completing the order. She quickly responded to the message but forgot to go back to finish the order. Anticoagulation continued unnoticed for days, and the patient developed hemopericardium and tamponade requiring emergency open-heart surgery. The spontaneous bleeding into the pericardium was felt to be caused by receiving the extra anticoagulant doses.[13]

Benefits of Texting Orders

Proponents of texting orders in healthcare have increased, often comparing the impact texting has had on communication to the impact flying has had on travel—a technological advance worthy of adoption in healthcare. The benefits of texting orders are primarily related to its popularity and convenience, workflow synergy and speed, and perception of similar risks when compared to other forms of communicating orders.

Popularity and Convenience

US citizens are spending more time using their phones to send texts than they do answering calls,[14] finding text messages to be convenient, immediate, reliable, concise, and likely to be read.[15] Research has also shown that 80% of healthcare providers use their phones for professional purposes,[16] mostly to communicate and access medication information.[7] Healthcare providers may have an aversion to clunky technology systems that tether them to computers,[6] slow them down, and increase their administrative-type work,[15] but it isn't surprising that the convenience of texting has become an appealing option for communicating orders.

Workflow Synergy and Speed

With ever-increasing constraints on healthcare providers' time, they may prefer texted orders over voice communication when one practitioner is offsite, particularly when prescriber order entry systems are not readily accessible. The task of calling another healthcare

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epidurally. The pumps do not currently use the new connector and, if they do in the future, this will require tubing that accepts the new connector.

Patient selection plays an important role in the safe use of elastomeric devices, both in and out of the hospital. Still, it is hard to predict what a patient (or family member) might do. Therefore, warning patients about any manipulation of these devices on their own is warranted. Mix-ups like this can also occur when staff maneuver various tubings. For now, affix labels on lines if the patient has more than one port of entry into the body (e.g., IV, arterial, umbilical, enteral, bladder, drainage tubes).

This is not the first time that an ON-Q pump (or other elastomeric pump) was involved in such an error. We detailed prevention recommendations in our July 16, 2009 newsletter (www.ismp.org/sc?id=188) and added additional safe use suggestions in our May 16, 2013 issue (www.ismp.org/sc?id=2918).

Don't abbreviate drug names. A patient was being treated in a trauma bay after being seriously injured in a motor vehicle accident. The patient had initially been paralyzed with vecuronium for rapid sequence intubation. Several minutes later, a trauma surgeon verbally ordered more vecuronium, saying she needed "10 of vec" (10 mg of vecuronium). But this was initially misheard as **TENIVAC** (diphtheria and tetanus toxoids), a vaccine commonly given to trauma patients. Read back or repeat back of the verbal order either did not occur or was accomplished using the same abbreviated name and dose that the prescriber voiced, "10 of vec."

Although Tenivac was administered (and would have been ordered anyway), staff quickly recognized that vecuronium was also needed for continued paralysis while the trauma team performed an emergency procedure in the emergency department. Still, lessons learned: don't abbreviate drug names—not even when communicating drug names orally—and repeat back (or read back, if the receiving practitioner is physically able to transcribe the order immediately) all verbal orders, saying the full drug name, dose, and dosing units.

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provider may not seem as efficient as texting, which often allows for an exchange of information quickly and succinctly with multiple parties in real time.[5] From a workflow perspective, texting may reduce the time waiting for colleagues to exchange critical information about the patient, which can improve patient outcomes.[6,7,17] While faster is not always better, texting can make phones seem like carrier pigeons[7] in a hurried healthcare environment where stabilization of the patient is often a priority.

Similar Risks

Proponents of texting orders may be aware of the risks associated with this process but suggest that there are similar risks and drawbacks with other order communication methodologies. For example, the risk of HIPAA violations is also high with verbal orders or when holding discussions with or about patients in open settings such as the emergency department, clinics, and other common patient or family areas.[6] While CPOE is the preferred method of communicating orders, it is not without risk.[17] Texting, CPOE, and verbal orders all require human interaction and thus invite human error.[6] And while verbal orders allow interaction between healthcare providers to seek clarification and ask questions, the voice of the caller cannot be objectively identified to authenticate the orders, and they also require transcription, just like orders that are sent via text.

Conclusion and Survey

As noted by TJC in its decision to abandon support of texting orders,[2] we don't have enough information about whether the security risks can be fully mitigated by newer texting platforms and whether the application of certain technologies, policies, and procedures can be used to effectively address the known safety issues. ISMP has received very few reports of medication errors associated with texted orders, so we know little about the problem and its scope. Thus, we **encourage all newsletter readers to participate in a 15-minute survey** (www.ismp.org/sc?id=2942) before **August 31** so we can learn more about these issues from those who are most affected by them. We really need your input to help guide our work on this topic, and we are sincerely interested in your opinions!

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Special Announcements

ISMP webinars

ISMP webinars are a convenient way for healthcare professionals to stay ahead of new trends in medication safety and gain additional knowledge in key areas. To register for our July and September webinars, please visit: www.ismp.org/sc?id=349.

July 11: *FREE WEBINAR*
Opioids in the Acute Care Setting: Safety is Within Our Reach

July 27: *2017 Update on The Joint Commission Medication-Related Standards*

September 12: *FREE WEBINAR*
Replacing Old Practices with New Paradigms: Adopting Safe Practices for IV Push Medications

OE/ISMP Just Culture Certification Course

Join ISMP and Outcome Engenuity (OE) for a unique **Medication Safety Focused Just Culture Certification Course** on **August 2-4** in **Wilmington, DE** (30 minutes from Philadelphia International Airport). Participants will explore the core concepts of a Just Culture and become an expert in the Just Culture Algorithm. Attend the 3-day course and leave with the confidence to work and lead in a Just Culture. CE credit is available for pharmacists and nurses. For details and to register, visit: www.ismp.org/sc?id=2940.

To subscribe: www.ismp.org/sc?id=382

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Report medication and vaccine errors to ISMP: Please call 1-800-FAIL-SAF(E), or visit our website at: www.ismp.org/MERP or www.ismp.org/VERP. ISMP guarantees the confidentiality of information received and respects the reporters' wishes regarding the level of detail included in publications.

ISMP Survey on Texting Medical Orders

ISMP is conducting a survey on texting medical (patient care) orders to learn more about this practice in healthcare. Please answer the first 3 questions (**Section A**) based on your personal opinions about texting medical orders. Answer the next 4 questions (**Section B**) as they relate to the healthcare organization in which you work. For those who have received at least one texted order in the past year, answer the last 3 questions (**Section C**) based on your experiences. Please complete the survey by **August 31, 2017**, and submit your responses to ISMP at: www.ismp.org/sc?id=2942. Thank you for helping us learn more about this method of communicating medical orders!

Section A: Your personal opinions about texting medical orders

1 **Do you believe the texting of medical orders should be allowed in healthcare?** (please select the one answer that best describes your opinion)

- ☐ Yes, texting orders should be allowed
- ☐ Yes, texting orders should be allowed under certain circumstances (please specify): _____
- ☐ Yes, texting orders should be allowed but only if using an encrypted phone/device application (e.g., TigerText, Doc Halo)
- ☐ No, texting orders should not be allowed under any circumstances
- ☐ Other (please specify): _____

2 **If the texting of medical orders is allowed in healthcare, should it be prohibited for any of the following?** (select all that apply)

- ☐ Texting of medical orders should not be allowed under any circumstances
- ☐ All high-alert medications
- ☐ Certain high-alert medications (please specify):_____
- ☐ Chemotherapy
- ☐ Controlled substances
- ☐ Medications that require complex order sets (e.g., parenteral nutrition, patient-controlled analgesia)
- ☐ Medications prescribed upon admission or during the reconciliation process
- ☐ New medication orders
- ☐ Emergencies
- ☐ No prohibited circumstances; allowed in all circumstances
- ☐ Other (please specify): _____

3 **Please rate your level of concern regarding the following potential risks associated with the texting of medical orders using the following key: 1=low concern, 5=high concern.**

Potential Risks	1	2	3	4	5	Comments
Security of protected health information						
Authentication of the sender and/or receiver						
Retention/documentation of the text message						
Order clarity						
a. Use of potentially confusing abbreviated text terminology (e.g., 2day for today)						
b. Misspellings						
c. Phone/device autocorrection, leading to wrong drug or patient names						
Order completeness						
Lack of prescriber clinical decision support while texting						
Delay in receipt or transcription of texted orders						
Error-prone transcription of texted orders						
Distractions while texting from incoming calls/texts/notifications						
Potential for patient misidentification						

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Section B: Texting medical orders in your organization

4 By policy, are medical orders allowed to be texted from a cell phone or other mobile device in your organization? (select one answer)

- ☐ Yes, texting orders is allowed
- ☐ Yes, texting orders is allowed under certain circumstances (please specify): _____
- ☐ Yes, texting orders is allowed but only if using an encrypted phone/device application (e.g., TigerText, Doc Halo)
- ☐ No, texting orders is not allowed under any circumstances
- ☐ Our organization has no policy regarding the texting of medical orders
- ☐ Uncertain ☐ Other (please specify): _____

5 Are medical orders being texted by prescribers in your organization (irrespective of organizational policies)?

- ☐ No ☐ Uncertain
- ☐ Yes
  - **How are the texted orders received?** (select all that apply)
    - ☐ Standard cell phone ☐ Encrypted application ☐ Other (please specify): _____
  - **How often have you received texted orders during the past year?**
    - ☐ Never ☐ Rarely (less than once a month) ☐ Infrequently (once or twice a month) ☐ Sometimes (every week) ☐ Often (every day)

6 Are texted orders prohibited in your organization for any of the following? (select all that apply)

- ☐ Texting of medical orders is not allowed
- ☐ All high-alert medications
- ☐ Certain high-alert medications (please specify): _____
- ☐ Chemotherapy
- ☐ Controlled substances
- ☐ Medications that require complex order sets (e.g., parenteral nutrition, patient-controlled analgesia)
- ☐ Medications prescribed upon admission or during the reconciliation process
- ☐ New medication orders
- ☐ Emergencies
- ☐ No prohibited circumstances; allowed in all circumstances ☐ Other (please specify): _____

7 Do healthcare practitioners send text messages to prescribers to ask questions or clarify orders (submitted via any means—text, electronic, etc.) that may be unclear, incorrect, or inappropriate?

- ☐ No ☐ Uncertain
- ☐ Yes
  - **Does the prescriber ever respond/reply by text?**
    - ☐ Yes ☐ No ☐ Uncertain

Section C: Your experiences with texted medical orders (answer ONLY if you have received a texted medical order during the past year)

8 How are texted orders entered into your electronic health record?

- ☐ The texted order is automatically entered into the health record by the technology being used
- ☐ The texted order is transcribed into the health record by the individual who receives the text, similar to a verbal or telephone order
- ☐ Other (please specify): _____

9 Among the texted orders you have received, how many of the orders contained abbreviated text terminology (e.g., 2day for today, b/4 for before, 2 for to, 3D for 3 times daily)?

- ☐ None ☐ Less than a quarter ☐ Quarter to half ☐ More than half
  - **If you have received texted orders with abbreviated text terminology, please provide examples:** _____

10 Are you aware of any errors or close calls that have occurred involving a texted order?

- ☐ No ☐ Yes (please describe): _____

Demographics

Please select the best responses that describe your country of practice, practice setting, professional discipline, and professional designation.

Country of practice: ☐ US ☐ International

Practice setting: ☐ Hospital ☐ Critical access hospital ☐ Long-term care ☐ Ambulatory ☐ Community pharmacy ☐ Other pharmacy ☐ Other (please specify): _____

Professional discipline: ☐ Physician ☐ Physician assistant ☐ Pharmacist ☐ Pharmacy technician ☐ Registered nurse ☐ Licensed practical nurse ☐ Advance practice nurse ☐ Risk/quality/safety professional ☐ Patient safety/medication safety officer ☐ Educator ☐ Other (please specify): _____

Professional designation: ☐ Staff level ☐ Manager level ☐ Director level ☐ Administration

Please leave any additional comments you may have about texted medical orders: _____