An Analysis of Patient-Provider Secure Messaging at two Veterans Health Administration Medical Centers: Message Content and Resolution

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METHODS

- Secure messages analyzed from 40 primary care teams at two VA facilities
- 1000 message threads between January 1 and April 15, 2013
- Site 1: teams selected by SM volume (low, medium, and high)
- Site 2: teams selected by variation in rate of escalated messages
- Each message coded for sender (Patient, Caregiver, Physician, Nurse Practitioner, Registered or Licensed Practical Nurse, Medical Assistant/Health Tech, Pharmacist)
- Thread coded message category, degree of resolution

RESULTS

- 94.5% of message threads initiated by patients
- Caregivers sent 2.5% of all messages.
- RNs and LPNs most likely to respond to patients
- Physician engagement in SM varied significantly from team to team
- 47.2% of threads' content was about medications
- The average thread was 2.7 messages per thread
- 2 out of 3 exchanges were completed with one reply from the healthcare team
- Messages were also fairly short, on average
- Urgent issues, raised as a concern by clinicians, were only 0.7% of messages
- Clinical team members used language that matched the readability of patient messages
- SM is not being used proactively to communicate with patients

Table 1: Message Content Categories

Message Content Code	Description of Content Area	Example
Health issues	Physical or mental health problem or concern not coded as a medication issue, test issue, etc.	"My right shoulder has been extremely sore for more than a month. I can't lift my right arm up and to the side without great pain. It has been over a month and getting worse.."
Medication Renewal or Refill	Request for refill or renewal of a medication or medical supply	"Please renew my prescription to Oxycodone HCL 5mg tab. Please have pharmacy mail to me."
Medication Issue	Medication or supply issue that is not a refill/renew and is not a problem with receiving the medication in mail (e.g., questions about dose or side effects)	"I'm sending a list of vitamins I take. Please have the doctor make sure they' are OK to take, and don't counteract what I take for Parkinsons?"
Test Issue	Patient questions about choosing among testing options, why a test is important, preparing for a test	"I just got a call from the women health clinic to remind me the urine test as a part of the blood test. Since I am not pregnant for sure, is that necessary to have the urine test? I am just asking."
Test Result	Request for or discussion of test results	"Thanks for sending me the test results. I still have a question for the doc about the numbers that you gave me..."
Self-Reporting	Patient-reported readings or measurements (e.g., blood pressure or blood glucose levels)	"Blood pressure at this time is 110/64 "
FYI-Informing	Patient sharing information with no additional discussion and does not fit other category (e.g., inform about non-VA care or test result).	"Just to keep you posted. EKG done yesterday. Blood work & urine done this AM."
Scheduling	Schedule an appointment, test or procedure.	"I would like to set up an appointment for a physical.
Referral	Request referral to a specialist.	"I would like to be referred to MOVE to help me with some weight loss. I also need you to set up an appointment for my knees and lower back. I'm having a great deal of pain in both, been injured in the past. Thank you"
Administrative	Administrative issues other than appointment scheduling.	"I didn't receive my medication in the mail"
Life Issue	Any contextual issues that are not strictly biomedical and are about the patient's life context.	"We're having lots of changes with my mom. Hospice people are coming here but now they're talking about putting her in a nursing home. They say can help her all the time."
MHV/SM/Tech	Issues related to My HealtheVet or Secure Messaging	"Can I access my blood test results using this software (My HealtheVet)?"

Appreciate	Expressing appreciation beyond a simple 'thank you'.	"I do want to take a minute to thank you for your help. It is a different world going through a pain-free day. You have been kind and caring and I do really appreciate it!!!"
Complaint	Complaining about care, services, MHV, etc.	"First and foremost...and I would think you would be aware of this by now, [Patient first name] is NOT my Dad...he's my husband."
Other	Content not captured by the above categories.	"Both of my accu-chek meters are reading E-9 when trying to get a reading. I think it's the battery, but I don't know how to fix it. Tell me how or what to do."

RESULTS

Figure 1. Overall Percentage of Total Messages (N=2710) Sent by Sender Type
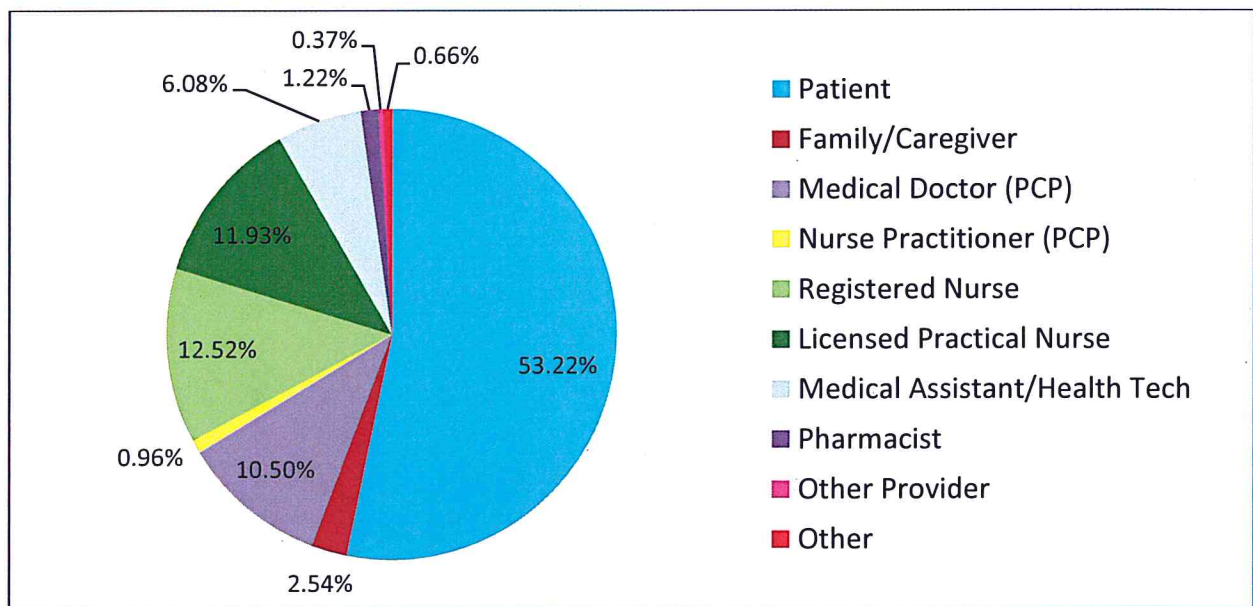
Table 2: Content of Patient- or Caregiver-Initiated Message Threads.

Message Content	Overall (N=945)	Site 1 (N=461)	Site 2 (N=484)
	N (%) of Patient-Initiated Messages by Content	N (%) of Patient-Initiated Messages by Content	N (%) of Patient-Initiated Messages by Content
Medication Renew or Refill	446 (47.2%)	221 (47.9%)	225 (46.5%)
Scheduling	166 (17.6%)	113 (24.5%)	53 (11.0%)
Medication Issue	122 (12.9%)	49 (10.6%)	73 (15.1%)
Health Issue	120 (12.7%)	33 (7.2%)	87 (18.0%)
Referral	66 (7.0%)	43 (9.3%)	23 (4.8%)
Administrative	61 (6.5%)	23 (5.0%)	38 (7.9%)
Test Result	51 (5.4%)	22 (4.8%)	29 (6.0%)
Test issue	49 (5.2%)	27 (5.9%)	22 (4.5%)
FYI - Informing	46 (4.9%)	22 (4.8%)	24 (5.0%)
MyHealtheVet / SM	39 (4.1%)	26 (5.6%)	13 (2.7%)
Appreciative	37 (3.9%)	30 (6.5%)	7 (1.4%)
Self-reporting	26 (2.8%)	17 (3.7%)	9 (1.9%)
Life Issue	14 (1.5%)	10 (2.2%)	4 (0.8%)
Complaint	14 (1.5%)	11 (2.4%)	3 (0.6%)
Other	14 (1.5%)	12 (2.6%)	2 (0.4%)

Table 3: Frequency of Potentially Problematic Secure Message Content

Type of Message	Description	Overall N=945	Site 1 N=461	Site 2 N=484	Fisher's Exact Test for Site Differences
URGENT	Health issues or content of sufficient severity that absence of immediate medical attention could be life-threatening or cause serious harm to patient (e.g., shortness of breath)	7 (0.7%)	6 (1.3%)	1 (0.2%)	0.0633
SENSITIVE	Personally sensitive content such as sexual issues, substance use, domestic violence	7 (0.7%)	3 (0.7%)	4 (0.8%)	1.0000
CHATTY	Extraneous to medical care (does not include life issues that may affect daily living, such as transportation)	21 (2.2%)	20 (4.3%)	1 (0.2%)	<0.0001
CONFUSING	Rambling, nonsensical; stream of consciousness or unclear	15 (1.6%)	11 (2.4%)	4 (0.8%)	0.0688
OFFENSIVE LANGUAGE	Verbal abuse; swearing; threatening	2 (0.2%)	0 (0.0%)	2 (0.4%)	0.4998

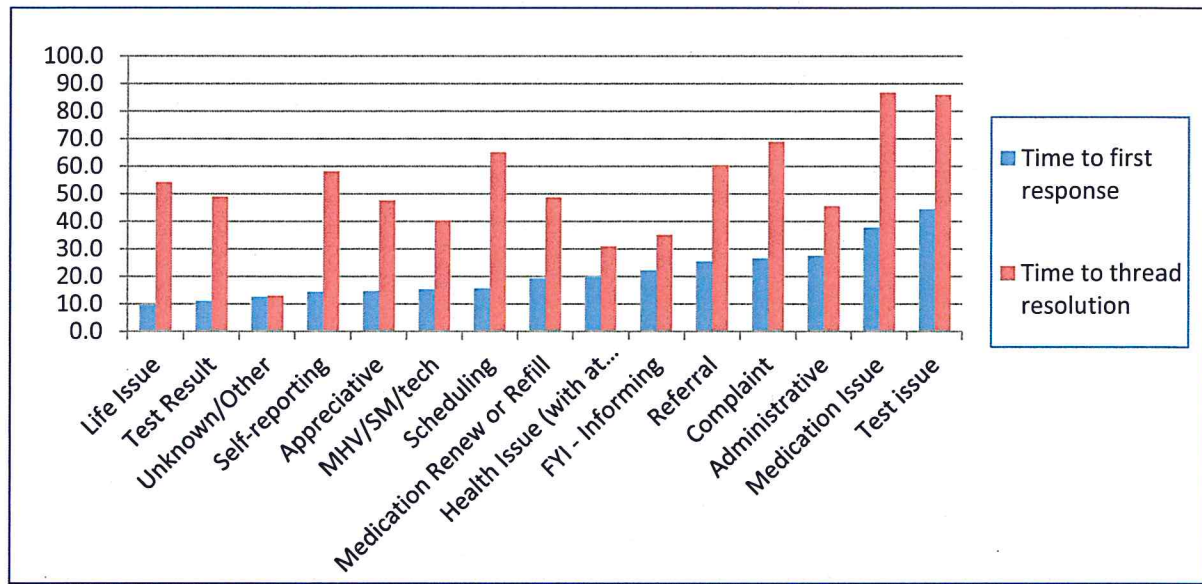Figure 2: Mean Hours from Message to First Response and Resolution by Message Type

Table 4. Message Resolution and Response Time by Message Content Type

Message Content	Percentage of Patient-Initiated Messages	Overall (N=945)					
		Message Resolution				Time to Resolution	
		Fully addressed	Partially addressed	Acknowledged	None/Don't Know	Average Hours to First Reply	Average Hours to Last Message in Thread
Health Issue (1 or more)	120 (12.7%)	68 (56.7%)	12 (10.0%)	2 (1.7%)	38 (31.7%)	28.9	49.5
Med Renew or Refill	446 (47.2%)	350 (78.5%)	47 (10.5%)	1 (0.2%)	48 (10.8%)	28.0	49.9
Medication Issue	122 (12.9%)	79 (64.8%)	17 (13.9%)	1 (0.8%)	25 (20.5%)	38.5	82.5
Test Issue	49 (5.2%)	41 (83.7%)	4 (8.2%)	0 (0.0%)	4 (8.2%)	36.9	66.3
Test Result	51 (5.4%)	44 (86.3%)	3 (5.9%)	0 (0.0%)	4 (7.8%)	28.0	68.8
Self-reporting	26 (2.8%)	15 (57.7%)	0 (0.0%)	1 (3.8%)	10 (38.5%)	24.9	71.4
FYI - Informing	46 (4.9%)	19 (41.3%)	7 (15.2%)	2 (4.3%)	18 (39.1%)	25.1	35.3
Scheduling	166 (17.6%)	130 (78.8%)	12 (7.3%)	0 (0.0%)	23 (13.9%)	19.7	55.8
Referral	66 (7.0%)	51 (77.3%)	7 (10.6%)	1 (1.5%)	7 (10.6%)	31.4	60.2
Administrative	61 (6.5%)	48 (78.7%)	3 (4.9%)	0 (0.0%)	10 (16.4%)	34.4	61.7
Life Issue	14 (1.5%)	6 (42.9%)	0 (0.0%)	0 (0.0%)	8 (57.1%)	21.6	50.5
MHV/SM/tech	39 (4.1%)	30 (76.9%)	0 (0.0%)	0 (0.0%)	8 (20.5%)	27.1	45.3
Appreciative	37 (3.9%)	23 (62.2%)	0 (0.0%)	0 (0.0%)	14 (37.8%)	22.1	50.0
Complaint	14 (1.5%)	8 (57.1%)	0 (0.0%)	0 (0.0%)	6 (42.9%)	28.8	81.0
Other	14 (1.5%)	7 (50.0%)	0 (0.0%)	1 (7.1%)	6 (42.9%)	15.0	15.3