



Castrichini, M., Nuzzi, V., Sinagra, G., Cleland, J. and Pellicori, P. (2021) Use of social media by cardiovascular health care professionals: is patient privacy respected? *JACC: Cardiovascular Imaging*, 14(8), pp. 1680-1682.

(doi: [10.1016/j.jcmg.2021.02.012](https://doi.org/10.1016/j.jcmg.2021.02.012))

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Deposited on: 22 February 2021

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Use of social media by cardiovascular health-care professionals: is patient-privacy respected?

Running title: cardiologists' use of Facebook and patient-privacy

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Conflict of interest: none declared.

Keywords: social media, privacy, confidentiality, Facebook.

Facebook provides an international platform for health-care professionals to discuss clinical cases and share opinions and expertise but carries a risk of breaching patient confidentiality. In December 2019, two trainees in cardiology (MC and VN) joined a popular (>50,000 users) Facebook group for cardiovascular health-care professionals, “ECHO BOARD REVIEW forum”. Any user can visualise posts in this group, but only those authorised by moderators can comment on, or post, clinical cases; users are not required to provide proof of their qualifications or profession. MC and VN retrospectively evaluated all content posted on this group between February 6th - 14th 2020, followed by a daily prospective evaluation between 7pm and 11 pm GMT until March 16th. Information about the type of data posted, personal patient details, geographic location and number of reactions, including likes and, for the prospective evaluation, comments within the first two days, was collected. Patient-privacy was considered fully violated when their name and surname were identifiable. We did not seek ethical approval for this analysis as we accessed only information in the public domain and disclosed no personally identifiable data either from those posting data or their patients.

Of the 233 posts examined during the observation period, 53 (23%) were reviewed retrospectively, and 180 (77%) prospectively. Most cases were echocardiographic video clips (n=219, 94%), mostly from Asia (n=110 (47%)) or Africa (n=53 (23%)); in 36 (15%) cases the continent could not be identified.

Overall, privacy was fully violated in 33 (14%) cases, often revealing other relevant personal details including date of birth (8; 24%), age (21; 64%) and the clinic where the diagnostic investigations were done (*Table 1*). In only one case was a public comment posted warning of a potential violation of patient-privacy; the case had not been deleted by the following day. We did not identify any case that explicitly stated that the patient had given their consent for their information to be shared.

Our findings show that many health-care professionals use Facebook groups to discuss clinical cases but, when they do so, they often reveal important personal information about their patients. Similar incidents involving medical blogs or amongst medical students have also been reported (1, 2). Failure to follow guidance provided by The General Medical Council in the UK or The American Medical Association on the use of social media for health-care professionals has led to investigations and disciplinary procedures in these Countries (3, 4).

Sharing de-identified information about a clinical case on a social network is an important educational tool that can reach a large audience (5), potentially benefiting many thousands of patients world-wide. It is also a means of getting expert diagnostic advice, which may be in short supply in rural or low-income settings. However, breaching patient-privacy has important ethical and legal implications, even when inadvertent. Both health-care professionals and social network platform providers should work to ensure that patient confidentiality is maintained. We were surprised that only once did a user warn an author that their post revealed the patient's identity, which suggests that many people using social media are unaware of their professional and/or legal obligation to protect patient confidentiality or don't take the issue seriously. Our findings might also reflect lack of clear local laws of health data protection in certain Countries.

Our study has some limitations. Our investigation included only one Facebook group. Our findings are explorative, and might not be generalizable. We could not distinguish if the author of the post was a doctor or another health-care professional. Knowing which group of health professionals is mostly responsible would help target educational messages. We defined privacy as fully violated if the name of the patient was clearly visible. However, other information or the rarity of the medical condition could lead to inadvertent identification of a patient even in the absence of additional details. We collected data about the material posted at the same time each day; some images or

videos might have been removed before our evaluation. It is also possible that users might have raised their concerns about breaches of confidentiality privately to authors.

In conclusion, social media allows knowledge and expertise to be shared amongst health-care professionals but, in doing so, violation of patient-confidentiality is alarmingly common. Standards and regulations for the use of social media by health-care professionals should be harmonised internationally. Providers of social-media platforms should be consulted for their expert advice. Achieving a balance between respect for patient-privacy and enabling health-care professionals to share information easily and quickly to provide education and receive potentially life-saving diagnostic and therapeutic advice is important; bureaucratic delay can itself be lethal. Rather than legal and regulatory experts, perhaps the best judge of how this delicate issue should be handled is a well-informed public who have the interests of patients, including potentially themselves, at heart.

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	Privacy preserved N=200 (86%)	Privacy violated N=33 (14%)	p value	
Diagnostic test				
Echocardiogram	193 (97)	31 (94)	0.62	
Echocardiogram – video	189 (95)	30 (91)	0.43	
Voice in the video	162 (81)	28 (85)	0.81	
ECG	3 (2)	3 (9)	0.04	
cMRI	1 (0.5)	0 (0)	1	
Angiogram	2 (1)	0 (0)	1	
Personal information				
Date of birth	1 (0.5)	8 (24)	< 0.001	
Age	55 (28)	21 (64)	< 0.001	
Sex	55 (28)	33 (100)	< 0.001	
Any clinical details*	78 (39)	33 (100)	< 0.001	
Location				
Nation	165 (83)	32 (97)	0.04	
City	147 (74)	30 (91)	0.03	
Name of the hospital	115 (58)	29 (88)	0.001	
Continent**				
	Privacy preserved	n. violations	% of violations	% in region
Asia	92 (46)	18	55%	16%
Europe	19 (9)	3	9%	14%
Africa	45 (23)	8	24%	15%
North America	4 (2)	1	3%	20%
South America	5 (3)	2	6%	29%
Unknown	35 (17)	1	3%	3%
Actions and reactions				
Diagnosis made by author	109 (55)	15 (46)	0.35	
Asking for diagnosis	91 (46)	18 (55)	0.35	
Number of comments [^]	13 (5 - 22)	9 (7 - 28)	0.88	
Number of likes [^]	21 (12 - 35)	24 (20 - 36)	0.50	
Number of comments at day 1 [§]	9 (3 - 16)	8 (2 - 12)	0.24	
Number of comments at day 2 [§]	12 (5 - 24)	10 (5 - 17)	0.18	
Number of likes at day 1 [§]	22 (11 - 37)	12 (9 - 23)	0.03	
Number of likes at day 2 [§]	31 (17 - 48)	21 (14-32)	0.02	
Response expressing concern about violation of privacy	0 (0)	1 (3)	0.14	

Table 1. Characteristics of the 233 posts reviewed, in which privacy was preserved (left) or violated (right). ECG, electrocardiogram; cMRI cardiac magnetic resonance imaging.

*Includes any clinical details reported, such as medical history, clinical presentation, sex, age, background medication. [^]: total number for retrospective cases. [§]: total number for prospective cases. **There were no cases for Australia.