

# Should 'smart phones' be used for patient photography?

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**BACKGROUND:** Within the field of plastic surgery, clinical photography is an essential tool. 'Smart phones' are increasingly being used for photography in medical settings.

**OBJECTIVE:** To determine the prevalence of smart phone use for clinical photography among plastic surgeons and plastic surgery residents in Canada.

**METHODS:** In 2014, a survey was distributed to all members of the Canadian Society of Plastic Surgeons. The questions encompassed four main categories: smart phone use for clinical photos; storage of photos; consent process; and privacy issues. The survey participation rate was 27% (147 of 545) with 103 surgeons and 44 residents. In total, 89.1% (131 of 147) of respondents have taken photographs of patients using smart phones and 57% (74 of 130) store these photos on their phones. In addition, 73% (74 of 102) of respondents store these photos among personal photos. The majority of respondents (75% [106 of 142]) believe obtaining verbal consent before taking clinical photographs is sufficient to ensure privacy is respected. Written consent is not commonly obtained, but 83% (116 of 140) would obtain it, if it could be done more efficiently. Twenty-six percent (31 of 119) of respondents have accidentally shown a clinical photograph on their phone to friends or family. A smart phone application that incorporates a written consent process, and allows photos to be immediately stored externally, is perceived by 59% (83 of 140) to be a possible way to address these issues.

**CONCLUSION:** Smart phones are commonly used to obtain clinical photographs in plastic surgery. There are issues around consent process, storage of photos and privacy that need to be addressed.

**Key Words:** *Clinical photography; Consent; Medical photography; Mobile phone; Plastic surgery; Privacy; Smart phone*

Over the past decade, mobile technology has begun to play an increasingly prominent role in the developed world. In particular, the popularization of social media has led to an explosion in the rates of use of 'smart phones' for digital photography and video. Not surprisingly, medicine has been no exception to this trend. Smart phone use for clinical photography is becoming increasingly prevalent in many academic centres for both therapeutic and nontherapeutic purposes including medical education, publication and research (1-5).

Within the field of plastic surgery, clinical photography is an essential tool that enables the documentation of a patient's condition throughout the course of treatment and, in turn, aids in making treatment decisions. Many medical centres provide trained medical photographers to take photos, document, and properly store or delete patient images. However, we have noticed an increasing number of residents using smart phones to take clinical photographs in our centres. Residents are capturing these images during initial patient consultations to assist their attending surgeon in determining the course of

## Peut-on utiliser les « téléphones intelligents » pour photographier les patients?

**HISTORIQUE :** La photographie clinique est un outil essentiel en chirurgie plastique. Les « téléphones intelligents » sont de plus en plus utilisés pour prendre des photos dans un contexte médical.

**OBJECTIF :** Déterminer la prévalence d'utilisation du téléphone intelligent pour prendre des photos cliniques chez les chirurgiens plasticiens et les résidents en chirurgie plastique du Canada.

**MÉTHODOLOGIE :** En 2014, tous les membres de la Société canadienne des chirurgiens plasticiens ont reçu un sondage. Les questions portaient sur quatre grandes catégories : l'utilisation du téléphone intelligent pour prendre des photos cliniques, l'entreposage des photos, le processus de consentement et le respect de la vie privée. Le taux de participation s'est élevé à 27 % (147 sur 545), soit 103 chirurgiens et 44 résidents. Au total, 89,1 % des répondants (131 sur 147) prennent des photos des patients à l'aide de leur téléphone intelligent, et 57 % (74 sur 130) les conservent dans leur téléphone. De plus, 73 % des répondants (74 sur 102) les entreposent avec leurs photos personnelles. La majorité des répondants (75 % [106 sur 142]) pensent que l'obtention d'un consentement verbal avant la prise des photos cliniques suffit pour garantir le respect de la vie privée. Le consentement écrit est peu obtenu, mais 83 % (116 sur 140) l'obtiendraient si ce pouvait être fait avec plus d'efficacité. Par ailleurs, 26 % des répondants (31 sur 119) ont montré accidentellement des photos cliniques entreposées dans leur téléphone à leurs amis ou leur famille. Une application pour téléphone intelligent qui intègre un processus de consentement écrit et l'entreposage externe immédiat des photos est perçue par 59 % des répondants (83 sur 140) comme un moyen possible de régler ces problèmes.

**CONCLUSION :** Les téléphones intelligents sont très utilisés en chirurgie plastique pour obtenir des photographies cliniques. Il faut régler certains problèmes liés au processus de consentement, à l'entreposage des photos et au respect de la vie privée.

treatment. Concerns regarding obtaining consent, what happens to the photos after they are presented to staff, and privacy issues for the patients, prompted us to explore this topic further.

The purpose of the present study, therefore, was to determine the prevalence of smart phone use for clinical photography among plastic surgeons and plastic surgery residents in Canada. In addition, the study hoped to gain some insight into how surgeons and residents feel about using smart phones for this purpose and whether guidelines or regulation is required.

## METHOD

Between January 20, 2014 and February 5, 2014 a 26-question survey was distributed to 545 members of the Canadian Society of Plastic Surgeons to identify the prevalence of smart phone use for patient photography. The target population for this survey was plastic surgeons currently practicing in Canada, and residents currently training in plastic surgery. The survey was offered in both English and French.

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Surgeons were contacted three times, with an initial letter of invitation followed up by two reminder e-mails, which outlined the date by which the survey had to be submitted. A third-party online survey service (Survey Monkey [www.surveymonkey.com]) was used to manage and collect all physician responses.

The term 'smart phone' is used to include any mobile cellular phone that has a built-in camera. The survey was designed with questions in four main categories: whether smart phones are currently being used for patient photography; how clinical photos are stored on smart phones; what form of consent is being used before taking patient photographs; and whether there are any perceived privacy issues with the use of smart phones. The survey was mapped to prevent respondents from answering unnecessary questions. The responses for each question were tabulated and divided by the number of responses in the denominator to obtain a percentage. Skipped answers were subtracted from the denominator for each particular question. The present study did not require any personal identifying information from, and posed no risks to, the respondent population. The study also did not involve the collection of patient information.

## RESULTS

A total of 147 responses were collected from the 545 surveys distributed (27% response rate). The respondents included 103 (70%) plastic surgeons and 44 (30%) plastic surgery residents. Most surveys were completed in English (94%). The top four provinces responding included Ontario (37% of all respondents), Alberta (21%), British Columbia (15%) and Quebec (13%).

### Smart phone use

In total, 89.1% (131 of 147) of respondents reported using their personal smart phone to take clinical photographs of patients. This included 84% (87 of 103) of responding surgeons and 100% (44 of 44) of responding residents. The most commonly cited reason for use of their smart phone included: to enhance communication among physicians; for future educational purposes; to include in the patient's medical record; and for personal reference in the future. Other reasons included tracking wound healing, for research purposes and not having a standard camera on hand. Fifty-four percent (76 of 142) of participants believed that there is a difference between the use of smart phones for taking clinical photograph versus the use of a standard camera. The majority of the comments generated by this question were negative reasons as to why smart phones are different including: the use of a smart phone for photos may appear less professional and may decrease surgeon credibility; the lower quality of images; the higher chance of improper use; and it is more difficult to maintain confidentiality because the connection to Internet allows for easy distribution (either intentionally or unintentionally). However, positive reasons were also presented which included: smart phones are always available to the surgeon because he/she always carries it; phones can be password protected whereas cameras cannot; it is easier to share images captured by a phone; and there is an ability to remotely delete contents of the phone. Overall, the group was split with regard to whether the ability to use smart phones for clinical photography is important for providing high-quality patient care: 32% (45 of 142) of respondents believed it was crucial, 55% (79 of 142) maybe necessary, 5% (seven of 142) not necessary and 8% (11 of 142) undecided.

### Storage of clinical photos

Among those using personal smart phones to capture clinical photographs, only 21% (27 of 130) delete the photos after their intended use. Another 22% (29 of 130) delete the photos from their phone after they transfer them to a computer database or to the patient's electronic medical record (private office). This leaves 57% (74 of 130) of respondents keeping photos on their smart phone. When asked in another question, 76% (97 of 128) of respondents store clinical photos taken by their smart phones on their computer database, indicating some respondents are keeping photos both on their phone and on their

computer. When examined closer, among the respondents who keep photos on their phone for any period of time, 73% (74 of 102) have clinical photos mixed in with their personal photographs and are not stored in a separate folder.

### Consent process

The majority of respondents (75% [106 of 142]) believe obtaining verbal consent before taking clinical photographs is sufficient to ensure the patient's right to privacy is respected. However, of those individuals who believe verbal consent is insufficient, 11 surgeons and three residents indicated they only obtain verbal consent. Overall, 72% (102 of 141) of respondents find written consent impractical for photographing patients for educational or clinical purposes. However, 83% (116 of 140) would obtain written consent if it could be done more efficiently. Of note, only 36% (51 of 142) of respondents are aware of their hospital policy for obtaining patient photographs. A similar percentage responded that their hospital had a medical photographer (35% [49 of 141]). Medical photographers are known to obtain written consent before any clinical photograph. In this regard, 95% (103 of 109) of respondents indicated that having a medical photographer does not remove the need to take clinical photographs themselves. Some comments included that it was too inefficient to wait for a medical photographer for each patient and that due to volume of patients, the medical photographer is unable to take all photos.

### Patient privacy

Despite the high percentage of use of smart phones to take clinical photographs in the present survey, 46% (59 of 129) of respondents reported feeling reluctant doing so. The main themes surrounding this discomfort were: potential for phone to be lost or stolen; question of security, privacy and confidentiality with a smart phone; existence of policies or legal issues around smart phone use, and the appearance of being unprofessional. In terms of security, 90% (129 of 144) individuals password protect their phone. Although the majority of participants have a password to their phone, of the respondents that store clinical photos on their smart phone, 26% (31 of 119) reported having accidentally shown a patient's photograph to a friend or a family member. None of the respondents reported that they had accidentally e-mailed or sent a patient's photograph to a recipient who was not involved in the patient's care.

Respondents were split when asked whether guidelines should be set to address the use of smart phones for taking patient photographs: 49% (69 of 141) in favour of guidelines; 50% (70 of 141) against guidelines; and 1% (two of 141) against smart phone use altogether. The 50% of respondents against guidelines either believed that physicians should be able to exercise their own judgment, 43% (61 of 141), or an alternative solution to guidelines is required, 7% (nine of 141). When asked whether the development of a smart phone application that incorporated a streamlined process for obtaining consent while simultaneously providing a secure storage site for images would address the current issue, the responses were more in favour than against (59% [83 of 140 yes], 41% [57 of 140 no]).

## DISCUSSION

Any image that captures a patient's condition constitutes part of his/her medical record and, as such, should be held to the same standards of confidentiality and consent to disclosure as any written or dictated record (6). Clinical photography, whether using a standard camera or a personal smart phone, is an integral part of the practice of plastic surgery. Smart phones are ubiquitous and many clinicians utilize the clinical tools on their smart phones in the context of patient care (1). Although using a smart phone as a camera is prevalent in Canada, there exists a discordance between the actual practice and the perceptions of the acceptability of this practice. The discomfort around the use of personal smart phones revolves around the uncertainty with privacy and confidentiality issues, the existence of any regulation or guidelines regarding smart phones, and the overall appearance of professionalism

and acceptance by patients. However, even with such uncertainties, it is not enough of a deterrent to prevent the employment of smart phones for clinical photography.

Images taken and retained on smart phones carry a high risk of compromising patient confidentiality. Often, these images are stored in the same location that personal images are stored, which also provides ample opportunity for confidential images to surface during a casual conversation that is unrelated to patient care, a practice clearly at odds with ethical conduct (7). With the current prevalence of the practice of using smart phones as clinical cameras, the issues of proper clinical image storage on smart phones must be resolved and an alternative to smart phone bans must be explored.

Although there is significant concern that the storage of clinical photos on a personal device increases the ease of distribution of photographs to the public domain (7), some of our respondents perceived smart phones as a more secure mode of clinical photography. They believe that, unlike cameras, the smart phones can be password protected, the cloud storage can be encrypted and managed remotely, and a standard camera can be as easily lost or stolen.

While some hospitals employ a medical photographer to capture clinical photos, the present study revealed that an overwhelming majority of surgeons do not believe the existence of a photographer eliminates the need for capturing their own clinical photos. Many barriers to accessibility of the photographer have been raised, such as the limited working hours and the large patient volume that may overwhelm this resource. Even within our own centres, the medical photographer is not available after daytime hours. With the convenience of smart phone cameras, images can efficiently be captured and used for clinical assessment without delay to patient care, further echoing a need for a bedside photography clinical tool.

In a review of current guidelines in the United Kingdom, Payne et al (8) found the majority of organizations state that consent should be provided in writing. In our study, the high utilization of verbal consent was most likely attributable to the commonly held view that verbal consent is sufficient to ensure patient privacy. However, even among the population of individuals that believed verbal consent to be insufficient for protecting patient privacy, 14 of these individuals admitted to obtaining only verbal consent. This dissonance between acceptability of verbal consent versus the current guidelines and common employment of verbal consent needs to be addressed, for the safety of both the patient and the physicians. As today's technology continues to advance, medicine will continue to face hurdles in managing patient information. The field of medicine needs to advance as a whole and begin to incorporate the technology required that can obtain both written patient consent and secure clinical photographs to be used efficiently in a hospital-wide system.

Another of the concerns brought forward by the comments provided in the present survey involved patient perception and comfort around the use of a smart phone camera. Many surgeons were concerned with patients believing it to be unprofessional and less credible if a surgeon were to use a phone in this way. A United Kingdom-based survey (9) revealed that 98% of patients were accepting of medical photos being taken and viewed by treating physicians while 82% also agreed to allow their photos to be used for medical education purposes. Conversely, only 12% of patients surveyed were comfortable with clinical photos being taken with personal smart phones, versus the 75% that were accepting of photos taken with hospital equipment. If smart phone clinical photography is to continue as a practice, further investigation into patient perceptions and comfort must be considered.

## Limitations

The response rate of the present survey was low, and there may be limitations to the generalizability of results. Another limitation is the selection bias associated with this type of survey. This was a voluntary response survey, which is often prone to bias due to the motivation of participants to respond. The individuals responding may have strong opinions regarding the topic at hand (such as it is acceptable to use smart phones versus not acceptable). Nonresponse bias may also play a part, because there may be a number of individuals who chose not to respond based on concerns surrounding admitting to using a smart phone for patient photography. There is likely also a set of plastic surgeons that do not use a smart phone for clinical photography and, therefore, did not feel compelled to respond to the survey.

## CONCLUSION

The field of plastic surgery is a highly visual field in which practice is complemented by the use of photographic images for patient care and educational purposes. Among Canadian plastic surgeons, personal smart phones are regularly being used to photograph the clinical state of a patient. The present study demonstrated that regardless of reservations or concerns, physicians still feel compelled to use personal smart phones in this fashion. Given the ubiquity of smart phones, further guidelines and regulations prohibiting smart phone use for patient photography are not feasible.

Nevertheless, should smart phones be used for patient photography? Yes. Smart phones are convenient and have the capacity to offer security and safety of patient data when appropriately programmed for such purposes. The use of personal smart phones is beneficial in terms of efficiency and for consultation with both the surgeon's team and other consulting teams. However, there is a need for a secure smart phone photographic clinical application that can be used at the bedside. Such an app would resolve the consent and privacy concerns surrounding the use of smart phones.

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