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A questionnaire-based study on quality and adequacy of clinical communication between physician and family members of admitted Covid-19 patients

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Objective: To assess adequacy of present means of clinical communication between physicians and (Covid-19) patients’ family members, to analyse their perspectives and recommend felicitous practices for virtual conversation during ongoing pandemic.

Methods: Cross-sectional questionnaire-based (20 questions) anonymous online survey was conducted including patient’s relatives (Group-1) and treating physicians (Group-2), through Google Forms.

Results: Response Rate was 82.5%. Group-1 and Group-2 included 155 and 204 respondents respectively. Group-1 preferred update by resident doctors (39%), twice a day (41.9%), daily case-summaries (80%) and hand-written document/electronic messages (53%,31%) as consent. Whereas Group-2 favored update by senior consultants (63%), daily one appraisal (55.9%) and scanned copies of hand written consent (81%) before high-risk procedures. The groups broadly agreed on the desired duration for a fruitful discussion (5–10 min) and designating one responsible person from the family for daily appraisal.

Conclusion: Use of modern techniques/technologies of communication (voice/video calls, texts) during the ongoing pandemic is acceptable to majority.

Practice implications: Study proposes a senior physician should communicate to a designated responsible family member at-least once a day for stable and twice a day for critical covid patients (more if patient’s health condition changes), either by voice or video calls for 5–10 min.

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1. Introduction

Healthcare providers are facing stiff challenges in patient management during the ongoing Covid-19 (Corona Virus Disease - 19) pandemic. One of the biggest tasks in era of social distancing is communication of patients’ health status to their families [1]. In usual circumstances, family members can meet their patients in wards or intensive care units (ICU). Active participation of relatives in patient care helps to build trust, allay the anxiety, and allows room for a structured communication with healthcare providers [2,3]. New hospital policies enforced during Covid-19 pandemic prevents patients’ family members from visiting their loved ones or even meeting their treating physicians. Family-centered care seems farfetched in present conditions. It is a new development, although distressing for both treating team and patients’ family members.

Relatives of critically ill patients are at increased risk for post-traumatic stress syndrome (PTSS, 57%), anxiety (80%), and depression (70%) in general [4]. Covid-19 pandemic, in its cruel way, has further added to problems due to social isolation in form of quarantine, segregation, and physical distancing. Non-verbal cues (eye to eye contact, body gesticulates, facial expressions, handshaking,
and so on), which constitute an integral part of an effective communication between a physician and family members of patients, goes lacking. This has adversely affected exchange of information regarding patients’ condition during this pandemic [5].

Dearth of a standard treatment module, uncertainties about outcomes and frequent changes in patients’ conditions affect the dynamics of interaction between healthcare providers and patients’ attendants. Slightest delay in informing an adverse event is liable to tarnish the trust (of families) in healthcare system and further demoralize the healthcare workers, leaving both stakeholders under undue stress. Healthcare providers have tried to bridge the gap through modern means of communication: smart phones, tablets, and computers using different applications like mails, text-messages, voice-calls, and video-calls. Various guidelines, applications, and websites were developed in different countries to meet the need.

This questionnaire-based study was planned to explore key issues of clinical communication with following objectives:

1. To assess the adequacy of present means of clinical communication as per:
   a. Expectations of patients’ family members
   b. Physicians’ perspectives

2. To assess the satisfaction level of respondents for present means of communication.

3. To suggest measures to improve upon the existing system.

2. Methods and statistics

After obtaining approval from Institute Ethical Committee (2020–327-IP-EXP-33), a cross-sectional questionnaire-based study was conducted in October and November, 2020 (when daily case counts in the city were high). It included patient’s family members (Group-1) and treating physicians (Group-2). It was an anonymous online survey using Google Forms.

Sample size was estimated based on the assumption that 50% of both groups were satisfied with the current communication pattern. Assuming margin of error as 10 from the true proportion with 95% confidence; sample size was calculated as:

\[ n = \frac{Z_{α/2}^2 \cdot p \cdot (1−p)}{d^2} = 97 \]

As simple random sampling was not done, sample size was re-calculated, after adjusting a design effect of 1.5, to be 97 * 1.5 = 145.5 ~ 150 in both arms.

Questionnaire began with an introduction stating details of the study and consent for participation. Initial 5 questions were related to demographic profile of respondents, followed by 20 questions (19 closed and 1 open) for assessment of adequacy of prevailing communication system [Annexure-1]. Local language was used to increase compliance. Content validity of questionnaire was conducted by 10 experts (5 Physicians and 5 Family members), who rated each question on a Likert scale for simplicity, clarity, ambiguity, and relevance. Reliability was established using test–reset method on 30 participants. Pearson correlation coefficient was 0.90.

2.1. Statistical analysis

SPSS version-23 was used for data analysis. Categorical data were analyzed using Chi-square test or Mann-Whitney U Test. p-values were obtained by suitable parametric or non-parametric tests. Text data collected from open-ended question was analyzed using ‘R’ software.

### Table 1
Demographic profile of participants.

| Parameters         | Options          | Group 1 N | Group 2 N | p value |
|--------------------|------------------|-----------|-----------|---------|
| Age                | Median (range)   | 42 (19–79) | 39 (23–66) | 0.088*  |
| Gender             | Male             | 108       | 140       | 0.747*  |
| Type of Family     | Joint Family     | 85        | 70        | <0.001* |
|                     | Nuclear Family   | 70        | 134       |         |
| Educational        | Primary          | 1         | 0         | <0.001* |
| Qualification      | Secondary        | 9         | 0         |         |
|                     | Undergraduate    | 53        | 25        |         |
|                     | Graduate         | 92        | 178       |         |

* Chi-Square Test.
  b Mann-Whitney U Test.

3. Results

A total of 435 emails and web links were sent by authors; 359 participants answered the survey. Response rate was 82.5%. Group-1 and Group-2 included 155 and 204 respondents respectively. Demographic characteristics of respondents in both groups were broadly similar. Majority (97%) were well educated (graduate or post-graduate). However, there was a significant difference in family structure, with nearly two-third of Group-2 living in a nuclear family (Table 1).

3.1. Differing responses (16/19 closed questions)

While 39% of respondents from Group-1 wanted status update by a resident doctor, this number was 21% in Group-2. Physicians were more comfortable with Unit-in-charge or senior consultant discussing patient’s condition (63% Vs 50% in Group-2 Vs Group-1). Difference of opinion existed about the place of communication. While 58% of Group-1 wanted treating physicians to communicate in front of the patients during ward rounds, respondents from Group-2 (65%) were more comfortable discussing from quarantine area (34%) or from office (31%) after completion of rounds (Table 2 & 3).

As far as number of appraisals per day is concerned, groups expressed a difference in opinion. More than half from Group-2 thought that once a day conversation is adequate for stable patients. However, 42% from Group-1 were in favor of 2 updates a day. Group-2 strongly believed (72%) that the same physician should talk to relatives to avoid confusion, whereas 42% from Group-1 wanted updates from multiple sources (Tables 2 and 4).

When it comes to obtaining consent prior to a high-risk intervention on patient, Group-1 was comfortable with handwritten scanned document (55%) as well as text messages (31%). However, more than 81% of clinicians strongly favored handwritten document. Nearly two-third of patient’s relatives were in favor of a video call during final moments of their loved ones. However, only 40% of clinicians voted for the same. Significantly more respondents from Group-1 wanted 24 h access to the physicians messaging applications (76% vs. 55%), face to face communication maintaining social distance (78% vs. 59%) and daily case summaries (82% vs. 53%) (Tables 4–6).

Majority of clinicians thought that too much communication is absorbing, affects their clinical efforts (77%) and is stressful (55%). Proportion of Group-1 members considering frequent phone calls as a deterrent to quality of services was significantly less (Table 7).

3.2. Similar responses (3/19 closed questions) (Table 4)

However, the groups agreed on following points:

1. Nearly 70% participants agreed that both layman and medical terms should be used for clinical communication.
2. Two third of respondents wanted single responsible person from the family to be apprised rather than multiple members.
3. Majority conferred 5–10 min as an optimal duration for an effective clinical discussion.

3.3. Open question

As authors represent a group of physicians, bias in opinion was likely with inter-group analysis of text data. Hence, open question data was analyzed together as a common cohort. Most frequently used words in comments by participants were: “Patient”, “Family” and “Status” (Fig. 1). Text analysis word model showed the association of various words and phrases used by participants. Thickness of lines connecting words was proportional to the frequency with which they were used together. While lines connecting “family” & “patient”; “patient” & “status” were thickest, lines between “face” & “communication” and “video” & “call” were also prominent. Most commonly used group of words were “family members” and “patient status”, followed closely by “face-to-face communication”, “voice calls” and “video calls”. As a common message participants expressed their desire for a face-to-face communication with appropriate measures or a video call.

4. Discussion and conclusion

4.1. Discussion

This web-based survey to evaluate the nuances of current communication means between family members and healthcare providers is the first of its kind. We tried to envisage the issues with present modes of conversation; adequacy and expectations of respondents (physicians and family members of patients admitted in Covid care). Two groups expressed a significant difference in opinion on 16/19 closed questions.

4.2. Who amongst the treating team should communicate with family members? (Q 1, 8) (Table 2)

While patients’ relatives were comfortable discussing clinical condition with either a resident doctor or a senior consultant, most physicians (63%) insisted that only senior consultants (Case-In-Charges) should brief about clinical status (Table 2). Heterogeneity (p-value 0.001) in opinion probably reflects the difference in thought process of the two groups. Respondents of Group-1 seem to be more concerned about patient’s conditions, rather who they are talking to. This is reflected in question number 8 as well where more people from Group-1 (45%) were ready to accept information from multiple sources as compared to 27% from Group-2. Treating physicians (Group-1) seem to be more particular about authenticity and uniformity of information. Multiple sources may bring about finer details of a patient’s status but at the same time is liable to create confusion and doubts. This may result in mistrust in the system and is likely to imbibe litigations.

4.2.1. From where and how communication to be accomplished? (Q2, 3, 7, 15) (Table 3)

Discussion among relatives and healthcare providers is an important facet of treatment. Family members are particularly concerned about the expected course and honest prognostication [6–8]. In present study, doctors were more comfortable addressing the patient’s relatives from outside the ward/ICU (p-value < 0.001) preferably using their own cell-phones (46%). Working in Covid-19 ward requires wearing personal protective equipment, which is cumbersome, uncomfortable, and stressful. Moreover, conversation from ward increases the duration of exposure. These reasons are better known to
physicians and may justify their preferences for area of communication (outside Covid wards) and equipment (own cell-phones). Availability of investigation details are important for a plausible discussion. In era of high-speed internet, this is no more a deterrent to discussion from outside the covid hospital. On the other hand, most patients’ relatives (58%) preferred the use of patient’s cell phones during bedside clinical rounds. Discussion during ward visits was probably reassuring for them regarding adequate care and authenticity of first-hand information.

Video calls, as advocated by ~40% doctors in the present study enables an eye-to-eye contact (virtually) with the kins of an ailing patient. It might positively affect the outcomes of treatment and

### Table 4
Duration and frequency of communication.

| Questions | Options | Group 1N (%) | Group 2N (%) | P value |
|-----------|---------|--------------|--------------|---------|
| Q4. How many average minutes a physician must dedicate to explain the health condition of every single patient? | 2–5 min | 58(38.2) | 57(28.4) | 0.203∗ |
| | 5–10 min | 74(48.7) | 108(53.7) | |
| | 10–15 min | 16(10.5) | 26(12.9) | |
| | > 15 min | 4(2.6) | 10(5.0) | |
| Q5. In a day, how many times the patient’s health status should be explained to families for a stable walking-talking COVID patient? | Once | 63(40.6) | 113(55.9) | 0.019∗ |
| | Twice | 65(41.9) | 62(32.2) | |
| | Thrice | 17(11.0) | 11(5.4) | |
| | Patient relatives should be provided 24-hour access to physician so that they can call any time | 10(6.4) | 13(6.5) | |
| Q6. In continuation to the above question, mark your response if a patient is unstable in an ICU and cannot himself or herself connect to family members on phone. | Once | 15(9.9) | 12(5.9) | 0.023∗ |
| | Twice | 34(22.5) | 49(24.3) | |
| | Thrice | 19(12.6) | 11(5.4) | |
| | Every time whenever condition changes | 61(40.4) | 108(53.5) | |
| | Patient relatives should be provided 24-hour access to the physician phone | 22(14.6) | 22(10.9) | |
| Q9. Which of the following is the best way of clinical communication with families by a physician? | Layman Terms | 42(27.1) | 64(31.5) | 0.183∗ |
| | Medical Terms | 4(2.6) | 1(0.5) | |
| | Both medical and layman Terms | 109(70.3) | 138(68.0) | |
| Q10. How many members/persons of a family should be explained about the patient’s condition? | The family member whose name is on the hospital record | 105(67.7) | 130(65.3) | 0.391∗ |
| | At least two close family members of the patient | 49(31.6) | 64(32.2) | |
| | All family members | 1(0.6) | 5(2.5) | |
| Q11. When do you think there is a maximum need for communication from the side of a hospital? | Within 24 h of admission | 40(26.0) | 76(37.6) | 0.018∗ |
| | Whenever a patient’s condition is deteriorating | 47(30.5) | 65(32.2) | |
| | All-time equal | 67(43.5) | 61(30.2) | |
| Q18. Does it make families more comfortable, if they are given 24-hour access to doctors’ messaging applications? | Yes | 111(76.0) | 98(53.5) | <0.001∗ |
| | No | 20(13.7) | 51(26.7) | |
| | Can’t say | 15(10.3) | 22(11.6) | |

* Chi-square Test.

### Table 5
Intricacies of sharing case summary and obtaining consent.

| Questions | Options | Group 1N (%) | Group 2N (%) | P value |
|-----------|---------|--------------|--------------|---------|
| Q14. To obtain consent of the guardian of patient before performing risky procedures, which of the following is the best suitable medium? | Messaging apps | 48(31.6) | 31(15.4) | <0.001∗ |
| | E-Mail | 20(13.2) | 6(3.0) | |
| | Scan of handwritten consent | 84(55.3) | 164(81.6) | |
| Q17. A daily clinical case summary of a patient should be shared with family members everyday through messaging apps. | Strongly Agree | 70(47.9) | 33(18.1) | <0.001∗ |
| | Agree | 50(34.2) | 64(35.2) | |
| | Neutral | 14(9.6) | 25(13.5) | |
| | Disagree | 10(6.8) | 44(24.2) | |
| | Strongly Disagree | 2(1.4) | 12(6.6) | |

* Chi-Square Test.

### Table 6
Effectiveness of present communication methods employed during the Covid pandemic.

| Questions | Options | Group 1N (%) | Group 2N (%) | P value |
|-----------|---------|--------------|--------------|---------|
| Q16. How would you rate your personal experience of communication during this pandemic in comparison to your earlier experiences? | Better | 105(70.0) | 97(51.6) | 0.002∗ |
| | Worse | 21(14.0) | 46(24.5) | |
| | Can’t say | 24(16.0) | 45(23.9) | |
| Q19. In an attempt to gain faith in each other, is it wise to allow a face-to-face communication between doctors and families (of course with the maintenance of social distancing norms)? | Strongly Agree | 41(28.1) | 29(16.2) | <0.001∗ |
| | Agree | 64(43.8) | 76(42.5) | |
| | Neutral | 29(19.9) | 29(16.2) | |
| | Disagree | 9(6.2) | 37(20.7) | |
| | Strongly Disagree | 3(2.1) | 8(4.5) | |

* Chi-Square Test.
help to allay their anxiety. Negro et al. also stressed on regular video calls from ICU for patients with RASS (Richmond Agitation-Sedation Scale) score of < 2 \[9, 10\]. Based on results of the present study we recommend using video calls for appraisal of patients’ health status to their families.

Death of a patient during hospital stay is a tormenting experience for both caregivers and family members. Counseling bereaved relatives during the final moments entails high communication skills. Nearly two-thirds of respondents from Group-1 were in favor of video calls during the last moments. On other hand, 30% of respondents from Group-2 were against a video call (p-value < 0.001) and an equal number were not sure about it. It is not always possible to predict the exact time of death. Final moments are often eventful and necessitate emergent actions: injecting life-saving drugs, cardiopulmonary resuscitation, pushing fluids, and so on. It is not pragmatic for a clinician to focus on connecting a video call. Moreover, it may not be comfortable for relatives to watch their patient fighting for breath and caregivers putting their final efforts to revive. A more practical solution can be placing video calls at regular intervals when patient is stable as suggested by Negro et al. [9].

4.2.2. How frequently and with whom should the physicians discuss health condition of an ailing patient? (Q4–6, 9–11, 18) (Table 4)

Number of appraisals per day should depend on patient’s condition. While more than 80% of respondents from both groups agreed that one or two appraisals a day were sufficient for a stable patient, nearly 50% agreed on the importance of communication especially when the health status changes (Table 4). Majority (> 2/3rd) accepted the use of both nonprofessional and medical terms during discussion with one nodal person from the family. Such measures are likely to ensure a comprehensive and true picture of patient’s conditions in front of family members. Contacting the same person each time is likely to mitigate communication gap and save time.

Discussion on a stable patient usually takes less time than a patient being nursed in an ICU. In a study from Europe centered on duration of consultation in outpatient department, authors documented a median period of 8.8 min to bring about meaningful discussions. Increase in duration was associated with an increase in age and complexity of patient’s condition [11]. On the other hand, studies from North America and Canada suggest an optimum duration for discussion in an outpatient department to be 20 min [12]. In present survey, more than 80% of respondents from both groups (p-value 0.203) conferred that most of the relevant information can be shared within 10 min. We suggest a flexible approach towards duration of discussions. Conversations should be structured and crisp to prevent burnout among treating physicians. Unnecessary prolonged and repeated discussions are likely to adversely affect clinical responsibilities as well as add to job-related stress. However, 55% of doctors were ready to share access to their messaging applications. It may be because they can fix a time to answer multiple

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**Table 7**

| Questions                                                                 | Options       | Group 1 N (%) | Group 2 N (%) | P value |
|---------------------------------------------------------------------------|---------------|---------------|---------------|---------|
| Q12. Does the burden of too much communication hamper the clinical work of Doctors? | Yes: 92(60.9) 145(77.1) | No: 14(9.3) 12(6.4) | May Be: 45(29.8) 31(16.5) | 0.004* |
| Q13. Does communication with families put any extra work stress over doctors? | Yes: 59(39.1) 105(55.6) | No: 31(20.5) 49(25.9) | May Be: 61(40.4) 35(18.5) | 0.001* |

* Chi-Square Test.
messages all at once in a crisp manner. It is often easy to pass on small and less important information through texts.

4.2.3. Obtaining Consent for procedures to be performed upon a patient, which carries risk. (Q14, 17) (Table 5)

When it comes to obtaining consent before high-risk intervention, Group-2 respondents (p-value < 0.001) have particularly stressed the need for a scanned copy of handwritten consent. This is important to ensure sharing of complete information regarding needs, pros, and cons of a procedure. In a study conducted by Brezis et al. on quality of informed consent before an intervention, most patients could not recall the risks explained or availability of an alternate procedure [13]. Similarly, other authors have reported inconsistent and poor (18–80%) recall of information provided (in informed consent) before a procedure in surveys conducted on the same day [14–16]. Patients and family members should understand the nuances of intervention in their language before giving affirmation. It sorts out legal and ethical issues as well as ensures cooperation, thus preventing errors. Besides, a handwritten consent documents approval from registered responsible person.

More than 80% of Group-1 wanted daily case summaries through messages, while this was acceptable to only 53% of Group-2. Daily recaps through messages does help to take second opinions and assess progress, but at the same time can imbibe litigations in the face of sudden unexplained deteriorations, autopsies being restricted in Covid-19 patients. It is more practical to display status of patients on screens in safe designated areas within hospital premises. Summaries should be handed over only at discharge, death, or when a patient needs to be transferred to other facilities as in usual circumstances.

4.2.4. Did Covid-19 pandemic improve quality of communication with families? (Q16, 19) (Table 6)

Family satisfaction is of prime importance, especially when patients are critically ill [17]. In this study, methods of communication were satisfying for both groups. However, >50% (72% of Group-1 and 59% of Group-2; p-value < 0.001) expressed their desire for face-to-face communication, maintaining a safe distance. This can be made possible through video calls or conversation across a glass shield with microphones.

4.2.5. Work burden and stress of doctors due to novel ways of communication with patients’ families. (Q12,13) (Table 7)

High number of respondents from both groups (Group-2 > Group-1; p-value 0.004) thought that frequent phone calls are a deterrent to quality of services extended by clinicians. Too much communication is absorbing for physicians, affects their clinical efforts (77%), and is stressful (55%). Burnout can be alloyed by structured and crisp discussions.

4.2.6. Views of physicians and patients in open-ended question (Q20)

As a common message, participants expressed their desire for a face-to-face communication taking appropriate measures or a voice/video call. It was in line with response to question number 19, where two-third agreed on meeting in person.

4.2.7. Limitations

In the present study, we have used a naive questionnaire which needs further validation. Most respondents from Group-1 were well educated (graduate or postgraduate), motivated to express their views, and belonged to urban background. We could not include people not well verse with modern communication gadgets due to pandemic constraints. However, the present study was adequately powered. When it comes to comparing physicians who are well educated, a comparison group with similar qualifications makes it more relevant. Response rate of 82% suggests the ease and relevance of questionnaire used in the study.

4.3. Conclusion

Use of modern techniques/technologies of communication (phone calls, text messages, and video calls) in the present pandemic era is acceptable to majority. It is desirable, to discuss patient’s condition at least once a day for 5–10 min or whenever it worsens. Status appraisal should be done by a senior physician, with a designated nodal member in the family. Consent before intervention should preferably be a scanned copy of a handwritten document.

We wish to recommend training sessions on communication skills (particularly virtual means) for physicians. A standardized but customized counseling protocol is the need of the hour. This will uphold the quality of communication even with a change in team of clinicians. As the pandemic is far from over, era of Isolation wards and ICUs shall continue. Adaptation to new normal will help in overcoming hurdles in the path of family-centered care.

4.4. Practice Implications

The authors suggest few modifications in the current practice to mitigate communication gaps:

I. A communication record should be maintained, including patient’s identifier, family member’s name, relation and active contact number.

II. Daily appraisal of patient’s conditions should be done – once/twice and whenever condition deteriorates.

III. Duration of counseling session should be 5–10 min.

IV. Senior consultants should communicate with a nodal family member.

V. Access to messaging applications can help to answer untouched doubts without affecting clinical responsibilities.

VI. Video calls or one-to-one communication with maintenance of physical distance can be selectively adopted.

VII. Scanned copy of hand written consent should be obtained before high-risk procedures.

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

CRediT authorship contribution statement

Rahul: Writing – original draft, Writing – review & editing, Conceptualization. Anup Verma: Formal analysis, Biostatistics part, Writing – review & editing. Alka Verma: Visualization, Investigation, Writing – review & editing. Om Prakash Sanjeev: Conceptualization, Writing – review & editing, Methodology, Project administration. Ratender Kumar Singh: Supervision, Writing – review & editing. Tannmo Ghatak: Supervision, Writing – review & editing. Alok Nath: Supervision, Writing – review & editing.

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