

Supplementary Materials: – Questionnaire

INFORMAL TELEMEDICINE SERVICES IN KZ-N HOSPITALS

Telemedicine is the use of information and communication technologies to provide healthcare over distance. Some examples that you may be familiar with are the use of videoconferencing for teledermatology or education, taking photographs and sending them by phone when referring a burns case to IALCH, referring cases by email or using instant messaging such as WhatsApp to refer a case or seek advice from a colleague.

AIMS OF THE STUDY

An informal and unplanned teledermatology service has evolved between rural doctors and the dermatologists at the Medical School using the smartphone instant messaging app, WhatsApp. We want to better understand how this service began, why some people who know about it may not be using it and whether those who are not currently aware of it would or would not use it in the future. We are also trying to determine what the referral load would be if this were established as a Province wide service. This information will assist the Dept of Dermatology in organizing their staff to meet the need.

At the same time we are exploring whether similar unplanned and undocumented telemedicine activities exist in other disciplines and what technologies or apps are being used. Examples being photographs of ECGs or X-Rays sent to a colleague for an opinion or advice by smartphone using instant messaging, email or social media. Also, whether you feel there is need for services to be developed in other disciplines and if you would use them.

We need to understand what your concerns are or might be about using telemedicine services, especially instant messaging eg WhatsApp.

Questionnaire

I have read the consent form and consent to participate in this survey.

Section 1

Demographic information

- Your age: 25 – 30 31 – 40 41 – 50 50 – 60 >60
- Gender: Male Female
- Years since medical graduation
1 – 5 6 – 10 11 – 20 21 – 30 >30
- Additional Post-grad /qualification? (Tick all that apply)
Certificate Diploma Masters MD/PhD Specialist
- What is your speciality?

6. Technology. Do you own any of the following devices. (Tick all that apply)

| | | |
|------------|-----|----|
| Smartphone | Yes | No |
| Tablet PC | Yes | No |
| Computer | Yes | No |

7. Technology - connectivity (Tick all that apply)

| | | |
|---|-----|----|
| Do you have access to a computer at work? | Yes | No |
| Do you have Internet access at work? | Yes | No |
| Do you have wireless access at work? | Yes | No |

Section 2

Teledermatology by instant messaging

8. Before taking part in this survey, were you aware that doctors in the public sector in KwaZulu-Natal are using WhatsApp and other forms of Instant Messaging to seek advice on the diagnosis and management of dermatological problems by taking photos of the lesions and sending chat messages?

Yes No

9. Have you ever used WhatsApp or other instant messaging service for teledermatology?

Yes No

If Yes, please complete questions 9 – 25

If No, please go to question 26

10. Which instant messaging applications have you used for dermatology? Tick all that apply.

| | | | | | |
|----------------------|--------------------------|-----------|--------------------------|-------------|--------------------------|
| WhatsApp | <input type="checkbox"/> | Facetime | <input type="checkbox"/> | Google chat | <input type="checkbox"/> |
| Viber | <input type="checkbox"/> | Facebook | <input type="checkbox"/> | Snapchat | <input type="checkbox"/> |
| Line | <input type="checkbox"/> | Instagram | <input type="checkbox"/> | WeChat | <input type="checkbox"/> |
| Kik Messenger | <input type="checkbox"/> | Telegram | <input type="checkbox"/> | Skype | <input type="checkbox"/> |
| Other (Please state) | <hr/> | | | | |

11. Who do you send your teledermatology consults to? Tick all that apply.

| | | | |
|--|--------------------------|-------------------------------|--------------------------|
| Dermatologists at the Medical School | <input type="checkbox"/> | Drs at your hospital | <input type="checkbox"/> |
| Dermatologists in KZN Public Hospitals | <input type="checkbox"/> | Drs at other public hospitals | <input type="checkbox"/> |
| Dermatologists in private practice | <input type="checkbox"/> | Drs in private practice | <input type="checkbox"/> |
| Dermatologists in other Provinces | <input type="checkbox"/> | Others | <input type="checkbox"/> |

12. Does the WhatsApp or other instant messaging service meet your needs?

Yes No

13. How satisfied are you with the Instant messaging teledermatology?

| | | | | |
|-------------------|--------------|--------|-----------|----------------|
| Very dissatisfied | Dissatisfied | Unsure | Satisfied | Very satisfied |
|-------------------|--------------|--------|-----------|----------------|

14. What has the average response time been to your messages?

| | | | | | | | |
|---------|---------|---------|-------|-------|--------|---------|-------|
| <10 min | <30 min | <1 hour | 1-3 h | 3-6 h | 6-12 h | 12-24 h | >24 h |
|---------|---------|---------|-------|-------|--------|---------|-------|

15. What is the average response time that you would like to have/

| | | | | | | | |
|---------|---------|---------|-------|-------|--------|---------|-------|
| <10 min | <30 min | <1 hour | 1-3 h | 3-6 h | 6-12 h | 12-24 h | >24 h |
|---------|---------|---------|-------|-------|--------|---------|-------|

16. Was the information/diagnosis/ management plan/advice provided by the dermatologist helpful?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

17. Do you follow the advice given?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

18. Do you feel that your patients are satisfied with the teledermatology consultation and process?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

19. Do you feel that your patients are satisfied with you taking photographs of their lesions?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

20. Did you have any difficulty taking photographs?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

21. Did you have any difficulty attaching photographs to your text messages?

| | | | | |
|--------|--------|---------------------|--------|-------|
| Always | Mostly | About half the time | Seldom | Never |
|--------|--------|---------------------|--------|-------|

22. When sending messages, what form of connectivity did you use? Tick all that apply.

The hospital wireless network

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|-----|
| Yes |
|-----|

| |
|----|
| No |
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A hospital networked computer

| |
|-----|
| Yes |
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| |
|----|
| No |
|----|

Your own data bundle on your phone or tablet

| |
|-----|
| Yes |
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|----|
| No |
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23. How did you become aware of instant messaging for dermatology?

Thought of it myself

| |
|-----|
| Yes |
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| |
|----|
| No |
|----|

From a colleague at work

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|-----|
| Yes |
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| |
|----|
| No |
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From a colleague at another hospital

| |
|-----|
| Yes |
|-----|

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|----|
| No |
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From the KZ-N DOH

| |
|-----|
| Yes |
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|----|
| No |
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From a dermatologist

| |
|-----|
| Yes |
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|----|
| No |
|----|

24. How did you choose which dermatologist to consult?

| | | |
|--|-----|----|
| From a list of dermatologists provided by the DOH | Yes | No |
| From a list of dermatologists provided by the Medical School | Yes | No |
| The dermatologist on call | Yes | No |
| Personal acquaintance with the dermatologist | Yes | No |
| On the advice of a colleague | Yes | No |
| The dermatologist who conducts outreach at our hospital | Yes | No |

25. How frequently do you use instant messaging teledermatology?

| | | | |
|-----------------|------------------|-------------------------|--------------------|
| At least weekly | At least monthly | At least once a quarter | Ad hoc when needed |
|-----------------|------------------|-------------------------|--------------------|

26. Any additional comments: _____

Section 3

Telemedicine

27. Are you aware of telemedicine services in KZ-N? Yes No
28. Are you using any telemedicine services? Yes No

29. If you are aware of telemedicine services but **NOT USING** them, please state why you are not using them? (Tick all that apply.)

| | | | |
|---------------------------------|--------------------------|------------------------------------|--------------------------|
| Don't know what to do | <input type="checkbox"/> | Takes too long to do | <input type="checkbox"/> |
| Did not know about it | <input type="checkbox"/> | Not interested | <input type="checkbox"/> |
| No training in telemedicine | <input type="checkbox"/> | No need | <input type="checkbox"/> |
| Not required by the DOH | <input type="checkbox"/> | Have concerns about telemedicine | <input type="checkbox"/> |
| No services available | <input type="checkbox"/> | Absence of telemedicine guidelines | <input type="checkbox"/> |
| Videoconferencing not available | <input type="checkbox"/> | Legal and ethical concerns | <input type="checkbox"/> |
| No equipment | <input type="checkbox"/> | No technology support | <input type="checkbox"/> |

Other Reasons: _____

30. If you are using telemedicine services what have you used them for and what method did you use? Please tick all that apply.

(VC= videoconferencing; IM = instant messaging eg WhatsApp;

| | Yes | VC | email | IM | Social Media | Cell phone calls | Web Site | Other |
|---------------------|-----|----|-------|----|--------------|------------------|----------|-------|
| consultation | | | | | | | | |
| second opinion | | | | | | | | |
| seeking a diagnosis | | | | | | | | |
| management advice | | | | | | | | |
| education | | | | | | | | |

31. If you are using telemedicine services how frequently do you use them? Please tick all that apply.

| | Daily | At least weekly | At least monthly | At least once a quarter | Ad hoc when needed |
|-------------------|-------|-----------------|------------------|-------------------------|--------------------|
| Videoconferencing | | | | | |
| eMail | | | | | |
| Instant messaging | | | | | |
| Facebook | | | | | |
| Cell Phone | | | | | |

32. If you using telemedicine, which services do you use it for?

| | | | | | |
|----------------------|--------------------------|--------------|--------------------------|----------------|--------------------------|
| Dermatology | <input type="checkbox"/> | Orthopaedics | <input type="checkbox"/> | Burns | <input type="checkbox"/> |
| Radiology | <input type="checkbox"/> | Cardiology | <input type="checkbox"/> | High care | <input type="checkbox"/> |
| Psychiatry | <input type="checkbox"/> | ENT | <input type="checkbox"/> | Obstetrics | <input type="checkbox"/> |
| Paediatrics | <input type="checkbox"/> | Urology | <input type="checkbox"/> | Rehabilitation | <input type="checkbox"/> |
| Other (Please State) | _____ | | | | |

33. Are you satisfied with the telemedicine services that you use?

| | | | | |
|-------------------|--------------|--------|-----------|----------------|
| Very dissatisfied | Dissatisfied | Unsure | Satisfied | Very satisfied |
|-------------------|--------------|--------|-----------|----------------|

Additional comments: _____

34. What form of consent if any do you obtain for: Videoconferenced and store and forward telemedicine, eg instant messaging, emails etc.?

| | Videoconferencing | | Store & forward | |
|--------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| It is not required | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Implied consent | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Verbal consent | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Written consent | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

35. If you are using instant messaging for telemedicine, which services do you use it for?

| | | | | | |
|----------------------|--------------------------|--------------|--------------------------|----------------|--------------------------|
| Dermatology | <input type="checkbox"/> | Orthopaedics | <input type="checkbox"/> | Burns | <input type="checkbox"/> |
| Radiology | <input type="checkbox"/> | Cardiology | <input type="checkbox"/> | High care | <input type="checkbox"/> |
| Psychiatry | <input type="checkbox"/> | ENT | <input type="checkbox"/> | Obstetrics | <input type="checkbox"/> |
| Paediatrics | <input type="checkbox"/> | Urology | <input type="checkbox"/> | Rehabilitation | <input type="checkbox"/> |
| Other (Please State) | <hr/> | | | | |

36. Use of chat groups.

| | | | | |
|--|--------------------------|-----|--------------------------|----|
| Do you use chat groups for work related activities? | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| If No , do others in your hospital use chat groups for work | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| If Yes , for which of the following activities are they used? | <input type="checkbox"/> | | <input type="checkbox"/> | |
| Administration eg meeting reminders, theatre bookings etc | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Seeking advice about a patient | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Giving advice to junior staff | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Informing colleagues about the status of a patient | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Informing colleagues about new admissions/discharges | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Informal discussion about a problem | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
| Education/CME | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |

37. If you are **NOT** using telemedicine services, would you like to use a telemedicine service?

Yes undecided

38. Whether you are using telemedicine or not, what telemedicine services would you like to have available to you?

| | | | | | |
|--------------------|--------------------------|---------------|--------------------------|----------------|--------------------------|
| Dermatology | <input type="checkbox"/> | Orthopaedics | <input type="checkbox"/> | Burns | <input type="checkbox"/> |
| Radiology | <input type="checkbox"/> | Cardiology | <input type="checkbox"/> | High care | <input type="checkbox"/> |
| Psychiatry | <input type="checkbox"/> | ENT | <input type="checkbox"/> | Obstetrics | <input type="checkbox"/> |
| Paediatrics | <input type="checkbox"/> | Urology | <input type="checkbox"/> | Rehabilitation | <input type="checkbox"/> |
| Plastic surgery | <input type="checkbox"/> | Maxillofacial | <input type="checkbox"/> | Dentistry | <input type="checkbox"/> |
| Acute medical care | <input type="checkbox"/> | Wound Mx | <input type="checkbox"/> | HIV Mx | <input type="checkbox"/> |

Other, please state: _____

39. If you were to use the instant messaging teledermatology service, how frequently do you think you would use it?

| | | | |
|-----------------|------------------|-------------------------|--------------------|
| At least weekly | At least monthly | At least once a quarter | Ad hoc when needed |
|-----------------|------------------|-------------------------|--------------------|

40. If a teleradiology service was available, about how many sets of XRays would you refer on average to a radiologist each week?

| | | | | | |
|------|-----|-----|------|-------|-----|
| None | 0-1 | 2-5 | 6-10 | 11-20 | >20 |
|------|-----|-----|------|-------|-----|

41. Are you aware of guidelines for telemedicine practice from any of the following organisations?

The HPCSA

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|-----|
| Yes |
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|----|
| No |
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The South African Medical Association

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|-----|
| Yes |
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|----|
| No |
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The World Medical Association

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| Yes |
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|----|
| No |
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The Medical Defence Union

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|-----|
| Yes |
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| No |
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The National Dept of Health

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| Yes |
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| No |
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42. What sort of security do you use on your smartphone?

Password/PIN

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| Yes |
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| No |
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|------------|
| Don't know |
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Timed screen locking

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| Yes |
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| No |
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|------------|
| Don't know |
|------------|

Fingerprint authentication

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| Yes |
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| No |
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| Don't know |
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Disabling or remote wiping

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|-----|
| Yes |
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|----|
| No |
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| Don't know |
|------------|

Full device encryption

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|-----|
| Yes |
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| No |
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| Don't know |
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Third party lock screen app

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| Yes |
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|----|
| No |
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|------------|
| Don't know |
|------------|

43. Any other comments?

Thank you for your participation.