TELEDERMATOLOGY IN THE ISRAEL DEFENCE FORCES

TELEDERMATOLOGY: QUALITY ASSESSMENT BY USER SATISFACTION AND CLINICAL EFFICIENCY

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Study objective

Evaluation of the implementation process, patient’s satisfaction, short term clinical outcome and primary physicians’ attitude towards the CSAFTD* service in the IDF.

*Computerized Store And Forward Teledermatology
Teledermatology was found to be reliable, accurate and mostly cost-effective in different architectures.

Most skin disorders were adequately diagnosed and managed, with the highest concordance to FTF in cases of eczemas and follicular eruptions.


American Academy of Dermatology
- Recognizes the body of literature on the effectiveness of teledermatology.
- Sees CSAFTD as a viable solution for underserved areas.
- Recommends the use of primarily Store and Forward models with VC option (hybrid model).

American Medical Association
- Recommends reimbursement equal to FTF consultation

US Congress
- Bill (S.2750) introduced supporting Medicare reimbursement of Store and Forward (S&F) telemedicine to improve access to healthcare

Teledermatology In the Israel Defense Forces
IN THE WORLD

- **Provision of telemedicine by Moscow to Azerbaijan**

- **The British Armed Forces providing telemedicine service in Bosnia.**

- **Teledermatology in vast areas of New Zealand.**
IN THE WORLD

- The U.S. Military experience with telemedicine

- Teledermatology in vast areas of New Zealand.
Primary care and dermatology in the Israel Defense Forces
Health services in the Israel Defense Forces (IDF) are mostly based upon primary care physicians stationed in the various units and large specialist's centers that service a large geographical area.
The Israel Defense forces employ app. 400 primary care physicians (PCP) deployed nationwide.

In 2002 there were a total of 1,400,000 visits at primary clinics.

The average soldier was referred to a PCP 7-8 times a year.
PCP's limitations

- The vast majority of PCPs are general practitioners with no dermatology expertise.
- Limited authorization capabilities.
Medical services include: specialists, laboratories, imaging departments and physiotherapy clinics in the army as well as civilian clinics and hospitals.

Referrals to specialist clinics in 2002:

The total number of referrals to specialist clinics were 509,703.
Teledermatology In the Israel Defense Forces

• The second most common referrals to specialized medicine in the IDF.
• The service includes a full examination, local treatment, in-depth examination after diagnosis and the required medicines.

Visits to the dermatologists in 2003: 52,000.
In the Israel Defense Forces, the demand for dermatologists’ services constantly exceeds supply.

- Specialist clinic – northern command: 22 days.
- Specialist clinic – central command: 40 days
- Specialist clinic – southern command: 35 days

Many units, especially those in remote rural areas engaged in intensive security activity, suffer from under service and patients are often required to travel long distances to specialist clinics.
Traveling to the DERMATOLOGIST...
Teledermatology in the IDF - bridging the gap?
Teledermatology in the Israel Defense Forces

Computerized store & forward teledermatology

PCP → Trained photo medic → Data base

Research → QA → CME: Distance Learning

Dermatologist

STATION 1  STATION 2  STATION 3
Patients with a dermatological condition that required a specialist, excluding those with pigmented skin lesions, are offered by their PCPs the CSAFTD service or a regular Face-to-Face referral.

Patients give consent to participate.

Each patient is examined by a PCP, who records the findings of the medical examination and the patient history on a prepared questionnaire.
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- Directs the PCP.
- Based on scientific literature.
- Reduces significantly the need for recurrent exchange of messages between the PCP & Dermatologist.

A prepared questionnaire:

- Description of the main problem
- Description of any secondary lesions
- Other symptoms
- Distribution of lesions
- Mucosal involvement
- Nail and hair involvement
- Duration of symptom
- Episodic or continuous
- Other aggravating factors
- Dermatological history
Specific guide to locate the skin problem and the kind of photography required by the primary doctor for consultation with the dermatologist.
Medical staff member in the primary clinic is trained at digital photography by professional military photographers and dermatologists, and instructed to follow a standardized scheme. The photo is sent by email to the virtual specialist clinic along with the questionnaire. The process is documented in the central medical record of the patient.
The photo & the questionnaire is sent to a board-certified military dermatologist, who replies by email with a diagnosis, suggested therapy and plan for management. The dermatologist answer is incorporated into the computerized patient record (CPR). The PCP receives a notification of a completed consultation in the patient record.
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Outcome measures
Common dermatoses distribution for age group

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### Referral rate to teledermatology

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Average derm ref. per month</th>
<th>FTF referrals</th>
<th>Tele referrals</th>
<th>Tele referrals percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training school</td>
<td>25.1</td>
<td>20.8</td>
<td>4.3</td>
<td>17.2%</td>
</tr>
<tr>
<td>Urban unit</td>
<td>32.2</td>
<td>27.8</td>
<td>4.4</td>
<td>13.2%</td>
</tr>
<tr>
<td>Rural unit</td>
<td>10.7</td>
<td>4.1</td>
<td>6.6</td>
<td>61.9%</td>
</tr>
</tbody>
</table>

**Inter-unit variability in CSAFTD usage rate**

63% ± 7.1%

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After 6 initial months of teledermatology service, 435 patients were examined by teledermatology process.

Mean Consultation TIME: 72 H

- 22% Tele-consultation only
- 78% Further referral to FTF appointment
Micro analysis: Haifa naval base
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6 months of CSAFTD service

No significant elevation in total number of derm referrals

Total referral to dermatologist
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Referral destination

Less referral to military clinics

No. of referrals

Month

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User feedback
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Patient satisfaction by unit type

(p<.0001) A higher satisfaction in rural units

- General satisfaction
- Satisfaction from the stuff explanation
- Privacy during photography
- Satisfaction from specialist drug supply

Rural unit
Urban unit
Satisfaction was high in both rural and urban clinics.

The rural patients scored higher on parameters of:
- Level of service
- Accessibility
- Overall satisfaction.

The rural physicians also scored these parameters higher than the urban physicians.
PCP satisfaction by unit type

(p<.0001) A higher satisfaction in rural units

Contribution to PCP knowledge
Level of solution to the patient complain
General satisfaction

Rural unit    |  Urban unit

Teledermatology
PCPs were overall highly satisfied with the CSAFTD service.

A significant difference between rural and urban physicians was found on the question of overall satisfaction which was graded higher by rural PCPs.

Most PCPs claimed CSAFTD service contributed to their dermatology knowledge.
Teledermatology - Summery

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For the patient: “Home Delivery”
- Case management stays within the unit.
- No need to travel long distances and lose work time.
- No need to wait to the appointment.

For the PCP: Empowerment
- Ability to offer a wider range of services to his patients.
- Improvement in quality of service.
- Gain dermatology knowledge.
- Fast response from the specialist.

For the organization: Improve efficiency.
- Optimization of specialist resources.
- Higher selectivity in specialist referral.
- Less outsourcing to civilian centers.
- Improved quality control.
- National leader in the teledermatology field.
Possible benefits

- Reduction of lost of work days due to 50,000 FTF referral to dermatologist.
- Educate the PCP – possible reduction in unnecessary referrals.
- Reduction in administrative referrals.
Key success factors

- **Leadership**: The clinic commander.
- **Incentive**: Both unit commanders and professional commanders.
- **Distinct CSAFTD sessions**.
- **Training of a specialized photo-medic**.
- **Responsibility and accountability of the PCP and the teledermatology specialist**.
let's talk about money

Teledermatology In the Israel Defense Forces
75% of referrals suitable for CSAFTD.
65% maximal referral rate observed in preliminary pilot.
10% of referrals require a hospital clinic.
78% of tele-referrals do not require additional FTF appointment.
A dermatologist can examine twice the number of referral per hour in CSATD.
CSAFTD service increases total derm referrals by 5%
- **Elements:**
  - 4-5 mega-pixels digital camera.
  - Training of a photo-medic.
  - Quality assurance.

- **Total cost:**
  - Annual camera cost 120$ (5 yr amortization)
  - Training in local IDF facilities 20$
Cost of a single referral

- **Cmil** – Cost of appointment at a military dermatology clinic.
- **Ccivil** - Cost of appointment at a hospital dermatology clinic.
- **Ctele** - Cost of tele referral.
- **Ftele** – tele consultation time factor (0.5).
- **Iinderm** - % of tele referrals of all derm referrals. (78%)

**Ctele = Cmil \times Ftele + Cmil \times (1-Iinderm)**
Cost of CSATD service in a single primary clinic

BEP (Break Even Point)
110 referral per year
10 per month

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Return Of Investment (ROI)

- Rural clinics: Average ROI 4.4 years
- Training unit clinics: Average ROI 2.8 years
- Urban clinics: Average ROI 1.5 years

The more you use the sooner you reach ROI

Number of referrals per year