To: Chair of the Basic Sciences Committee 18.04.2016

**Proposal for Clinical Research as Replacement of Basic Sciences Research**

**Research Subject**

Factors affecting the referral of patients for endodontic treatment by general practitioners to endodontic specialists in Israel – comparison between Jewish and Arab societies.

**Literary Review and Research Goal**

Oral and dental health is an important factor in the health and wellbeing of a population. Oral and dental health have an immense influence on quality of life, both in maintaining normal daily life functions including eating, speaking, and engaging in social interactions, as well as preventing pain and discomfort. (1) The treatment and prevention of oral and dental diseases are also vital for the improvement of general health and wellbeing of the patient. (1) Patients with dental pulp lesions usually suffer acute, debilitating pain, preventing them from engaging in work and leading to expensive treatment that may require several appointments over a long span of time. (2)

Numerous studies have emphasized the significant need for endodontic treatment as part of the dental treatment plans among the general population. (1) Part of the required endodontic treatment is the root canal revision.(2)

The literature reports high success rates of endodontic procedures, ranging between 91-97%. (3-6) Most of the studies surveyed endodontic procedures performed in clinics specializing in endodontics. (7,8)Long-term studies have demonstrated significant differences in success rates of endodontic procedures performed by specialists and general dental practitioners. (3-8) The success rates of endodontic procedures performed in general practice clinics were significantly lower and were accompanied by high failure rates. (3,9,10) In these cases, periapical lesions were found at a rate of 22-61%, and low quality of root canal treatment was found in 47-86% of the cases. (9,10)

Low treatment quality may eventually lead to tooth loss and extraction. Most of the general population is treated by general dental practitioners and trust their clinical decisions including whether to treat a tooth or extract it. (11)

Patient awareness of the existence of an endodontic specialty is rather low, and most knowledge about endodontic specialists comes from the general dentist. (12)

The decision whether to perform the endodontic procedure by a general dentist or refer the patient to a specialist depends on several criteria: (13,14)

1. The dentist’s appraisal of his/her own ability of dealing with the clinical case
2. The dentist’s seniority and professional experience, which may affect his/her decision-making
3. The strength of the connection and professional regard of the general dentist towards the endodontist and his/her belief in the supreme professional abilities of the endodontist

Previous studies have shown that most cases referred to an endodontist are cases with mishaps, diagnostic difficulties, previous failures, or cases requiring surgical knowledge and skills. (15-19)

A survey performed among general dental practitioners in the UK (15) researched the reasons for a referral to an endodontic specialist. It was found that 87% were referred due to perforations, 78% for an endodontic retreatment, and 73% for periapical surgery.

A separate study performed in Lithuania (16,17) showed that reasons for referral included broken instruments in the root canal (86%), diagnostic difficulties and problems (79%), and long-lasting symptoms (78%).

A third study performed in Korea (18) found that the key reasons for referral of patients to endodontic specialists were pain (55.9%), periapical radiolucency (35%), and sinus tracts (17.6%).

An epidemiologic study performed in Belgium (19) in 2014 has shown that the most common reasons for referrals to an endodontic specialist were connected with problematic dental anatomy in 48% of the cases, perforations in 42% of the cases, and 39% of the cases required retreatment.

An additional epidemiologic study performed in Lithuania (20) demonstrated that periapical pathology is common among the general population, and 82% of dental treatments were related to periapical inflammation, despite the fact that the overall percentage of endodontic referrals was low.

These discrepancies in the results among the different studies may stem from differences in treatment philosophies between various schools, differences in undergraduate study programs, and the penetration of modern technology to dental clinics. (14)

Surveys performed among general dental practitioners in different countries have shown that the decision to refer a patient may be affected by various, specific factors in every country, including socio-economic status, differences in undergraduate study programs, years of professional experience, and the dental practitioner’s work environment. (1, 20-22)

In many studies, it was demonstrated that endodontic treatment performed by a specialist is advantageous. Nevertheless, an inconsistency was found between the necessity of treatment and the number of referrals to specialists. The key reasons for this inconsistency are low numbers of specialists in the regions surveyed, long waiting lists for appointments at specialist clinics, and the economic difficulty experienced by referred patients to cope with the higher cost of specialty treatment. (23)

In Israel, no research was performed hitherto surveying the referral frequency of endodontic patients to specialists, and the factors affecting decisions to refer. The Israeli population is diverse and consists of two key ethnic groups – Jews and Arabs. Numerous studies (24-26) demonstrated inequalities and disparities in health status between Jews and Arabs, in terms of life expectancy (26) and general mortality (26). Throughout the years, the disparities between Jews and Arabs were maintained and even expanded. (26) Studies aiming to explain the healthcare inequality between Israeli Jews and Israeli Arabs support their findings through cultural differences, different perceptions of the diseases and diseases, social support, and socio-economic status. (25) Oral and dental health are an important part of general healthcare. Nevertheless, dental treatment is not part of socialized healthcare in Israel and bears significant out-of-pocket expenses. This study will address the influence of these parameters on the decision to refer the patient to dental specialists.

**Research Goal**

This study will compare the referral frequency of patients in need of endodontic treatment by general dental practitioners to that of endodontic specialists among the Israeli Jewish and Arab populations and will analyze reasons for referral and the factors affecting referral decisions.

**Materials and Methods**

Jewish general dental practitioners will be selected from the database of the Israel Dental Association, and Arab general dental practitioners will be selected from the database of the Arab Dentists Association in Israel.

A questionnaire will be designed, surveying:

1. The number of referrals to endodontic specialists given by general dental practitioners
2. Reasons and factors affecting the decision to refer (Addendum A – Questionnaire sample)
3. A statistical analysis will be performed on obtained data (please elaborate)
4. Conclusions
5. Recommendations

The candidates for inclusion in the study will be contacted personally by telephone and email, in which a short explanation will be provided about the study and its goals, and participant consent will be obtained.

The questionnaire will be disseminated among Arab dentists via email.

The questionnaire will include questions relating to the dentist’s professional background, years of experience, dental school from which he/she graduated, number of referrals given, and perceived necessity of referring patients to endodontists.

**Significance of the Study**

The Arab population in Israel is characterized by a low proportion of specialists relative to the population size (3 Arabic endodontic specialists).

The low socio-economic status of much of the Arab population does not allow patients to be referred to endodontic specialists due to the high costs of such treatment.

The results of this study might suggest the need to provide additional postgraduate education in the field of endodontology to all Arab dentists in order to improve the success rates of endodontic procedures performed in general dental offices, while emphasizing the need of collaboration between general dental practitioners, dental schools, dental associations, and the Israeli Endodontic Association. In addition, we aim to increase awareness of Israeli Arab general dental practitioners and their limitations, and to emphasize the indications for referral of complex cases to an endodontic specialist.

**Bibliography**

[was not translated]

**Addendum A**

**Study Questionnaire**

Part 1

1. Graduation year \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Graduation country \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Gender: M / F
4. Have you completed a dental residency program? Yes / No If answered Yes, please state the school of residency, its length, and whether you have received a specialty diploma? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Your clinic’s location in Israel: (please circle)
	1. Galilee and Jordan Valley
	2. Haifa, Acre, Nahariya, and surroundings
	3. Hadera, Netanya, Raanana, and surroundings
	4. Tel Aviv metropolitan area and surroundings
	5. Rishon LeZion, Rehovot, and surroundings
	6. Ashdod, Ashkelon, Beer-Sheva, and surroundings
	7. Eilat and the Aravah desert
6. Please circle all types of employment relevant to your practice:
	1. Owner of a private clinic
	2. Associate in a private clinic
	3. HMO / Dental Support Organization
	4. Hospital
	5. Academic institution
7. Did you participate in continuing education courses in endodontology?

Year \_\_\_\_\_ Subject \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Course length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Provided by (name of company / institution): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Year \_\_\_\_\_ Subject \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Course length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Provided by (name of company / institution): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Year \_\_\_\_\_ Subject \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Course length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Provided by (name of company / institution): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Do you perform endodontic treatments? (please check the applicable)
	* Only single-rooted teeth
	* Only single-rooted and double-rooted teeth
2. Do you perform endodontic retreatments?
	* Only single-rooted teeth
	* Only single-rooted and double-rooted teeth
3. Do you refer cases to endodontic specialists?
	1. Yes
	2. No
4. Is there a dentist in your clinic to whom you refer endodontic patients?
	1. No
	2. Yes, an endodontic specialist
	3. Yes, a dentist only performing endodontic procedures
5. Which of the following cases would you refer to an endodontic specialist? (mark all applicable)
	1. All cases
	2. Cases of dental trauma
	3. Patients with spontaneous pain and/or swelling
	4. Teeth with large periapical lesions
	5. Teeth with curved roots/canals
	6. Teeth with calcifications
	7. Endodontic retreatments
	8. Teeth with restorations (crowns/bridges)
	9. Any prosthetically-strategic tooth
	10. Teeth requiring endodontic surgery
	11. Teeth with irregular anatomy
	12. Endodontic procedures in patients at high risk / with systemic diseases
6. If you refer to an endodontist, is this a single specific endodontist? Yes / No
7. If you refer to several endodontic specialists, please state how many: \_\_\_\_\_\_\_\_\_\_
8. Rate the importance of the following factors regarding your decision to refer a patient to an endodontic specialist:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly disagree |  |  |  | Strongly agree |
|  | 1 | 2 | 3 | 4 | 5 |
| Cost of the treatment by an endodontic specialist |  |  |  |  |  |
| The clinical status of the patient (curved root, retreatment) |  |  |  |  |  |
| Complications of pain and swelling |  |  |  |  |  |
| The patient’s desire to be treated in your clinic or to be referred to a specialist |  |  |  |  |  |
| In some cases, a non-endodontic treatment is preferred |  |  |  |  |  |
| Availability of modern medical equipment (endodontic microscope) |  |  |  |  |  |
| Your own confidence in your ability to perform the procedure |  |  |  |  |  |

1. Rate the importance of the following endodontist-related factors regarding your decision to refer a patient to an endodontic specialist:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly disagree |  |  |  | Strongly agree |
|  | 1 | 2 | 3 | 4 | 5 |
| Accessibility (convenient and close location) |  |  |  |  |  |
| Skill of the endodontist |  |  |  |  |  |
| Satisfaction of patients previously treated by the endodontist |  |  |  |  |  |
| The endodontist collaborates with me in the planning of the treatment |  |  |  |  |  |
| The endodontist cares and follows up on his patients |  |  |  |  |  |
| Availability of modern medical equipment (endodontic microscope) |  |  |  |  |  |

1. In general, do you perform the following endodontic procedures?
	1. Non-complex endodontic treatment (minimal difficulty, single/double rooted teeth, minimal pain and swelling)
	2. Medium complexity (medium difficulty, teeth with intact crowns, minimal pain and swelling)
	3. Highly complex (severe difficulty, endodontic procedures in second and third molars, bent root canals, broken instruments in canals)
	4. None of the above
2. To what extent do you agree with the following statements?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly disagree |  |  |  | Strongly agree |
|  | 1 | 2 | 3 | 4 | 5 |
| The endodontist is a partner in the quality of a dental treatment |  |  |  |  |  |
| There are enough endodontic specialists in the community |  |  |  |  |  |
| An endodontic treatment to preserve a tooth is better than its extraction and replacement with an implant (if possible) |  |  |  |  |  |
| The work of a skilled endodontist is worth its financial cost |  |  |  |  |  |
| I can perform most treatments at an endodontist’s level |  |  |  |  |  |
| I can do the same procedures as an endodontist, but at a lower cost |  |  |  |  |  |

1. What can increase the number of referrals to an endodontic specialist?
	1. Improvement of communication with the endodontist by advertising his/her phone number and email address
	2. Personal acquaintance with an endodontist (through his/her visits at the clinic)
	3. Recommendations by other dentists, based on previous referrals
	4. The endodontist’s personality and regard for the patient
	5. The endodontist’s personality and regard for the referring dentist