

# Chapter 4

## Telemedicine Program for Management and Treatment of Stress Urinary Incontinence in Women: Design and Pilot Test

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### ABSTRACT

*Stress Urinary Incontinence (SUI), defined as involuntary urine leakage caused by physical activity and/or efforts, is a frequently found pathology among women that significantly affects their quality of life. SUI treatments are often less effective than expected because they require a conscious effort by the patient to follow them correctly and usually have drawbacks, such as their high cost, time, and/or schedule requirements. ICT-mediated Physical Therapy treatment programs can be useful to improve Stress Urinary Incontinence symptoms and pelvic floor function in women while maintaining total confidentiality, with an at home treatment, accomplishing a higher adherence to the treatment, keeping a low budget for the patients, and saving the health systems' economic resources.*

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## INTRODUCTION

The use of Information and Communication Technologies (ICT) and telemedicine can help improve the adherence to the Physical Therapy treatment, and, additionally, it can improve the possibilities of the healthcare providers to monitor if patients follow the treatment correctly (technically and in the recommended schedule), to control the evolution of the patient, and to interact with every patient individually.

Urinary Incontinence (UI) in women is a very important and prevalent health problem that affects quality of life in patients and can be psychologically threatening for them. Its treatment usually consists in Physical Therapy interventions and exercises in groups of affected women (added or not to a medical/pharmacologic management) and to do some individual exercises regularly at home. So, UI women need to go to the Physical Therapist's practice to do the interventions and exercises, generally twice or three times every week during some months, to learn and do their exercises in order to help improving their incontinence; added to the therapy, patients usually must do some home exercises on a daily basis.

This is a quite non affordable program in many cases, due to the geographical distance to the physiotherapist's practice, and for the time and money expenditure that women have to dedicate to the treatment. So, in many cases, treatment adherence is really low and women do not follow correctly the programs; moreover, pathology frequently does not improve as expected.

An ICT mediated domiciliary intervention program for women with UI and need for Physical Therapy is presented. This program has been designed and tested using ICT commodities, as an Internet connected PC with a regular built-in or USB video camera, Skype® and a specific Bio-feedback device (Birdi®) to control the vaginal

muscular force or the vaginal closing pressure and monitor the quality of patient's exercises, sending data by Bluetooth to a mobile phone connected to Internet.

With this program, physical therapists can see and interact with every patient confidentially, receive all medical data from the patient to control the quality of the exercise done and monitor and evaluate how every patient's UI is improving day by day. Neither the patient nor the physical therapist must move from their locations, and quality therapy can be provided to patients anywhere in the world, easily and confidentially.

The aim of this chapter is to show how ICT can be applied to conservative Stress Urinary Incontinence treatments (SUI) (Physical Therapy).

This chapter begins with background information about telemedicine and Urinary Incontinence. The main focus of the chapter explains the current model used in Stress Urinary Incontinence treatment followed by our proposal and recommendations: the use of telemedicine and the ICT aided Physical Therapy management and treatment of SUI. After that, we propose future research directions. Then, at the end, there are our conclusions.

## BACKGROUND

### Telemedicine Generalities

Telemedicine is defined as the use of telecommunication and information technologies in order to provide clinical health care at distance. The American Telemedicine Association (ATA: [www.americantelemed.org](http://www.americantelemed.org)) defines telemedicine as "the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status".

Sometimes, the terms telemedicine and telehealth may refer to different meanings or defini-

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