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Original Contribution

# A pragmatic trial to improve adherence with scheduled appointments in an inner-city pain clinic by human phone calls in the patient's preferred language

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ABSTRACT

*Study objective:* We investigated if human reminder phone calls in the patient's preferred language increase adherence with scheduled appointments in an inner-city chronic pain clinic. We hypothesized that language and cultural incongruence is the underlying mechanism to explain poor attendance at clinic appointments in underserved Hispanic populations.
*Design:* Pragmatic randomized controlled clinical trial
*Setting:* Innercity academic chronic pain clinic with a diverse, predominantly African-American and Hispanic population
*Patients:* All ($n = 963$) adult patients with a scheduled first appointment between October 2014 and October 2015 at the Montefiore Pain Center in the Bronx, New York were enrolled.
*Interventions:* Patients were randomized to receive a human reminder call in their preferred language before their appointment, or no contact.
*Measurements:* We recorded patients' demographic characteristics and as primary outcome attendance as scheduled, failure to attend and/or cancellation calls. We fit Bayesian and classical multinomial logistic regression models to test if the intervention improved adherence with scheduled appointments.
*Main results:* Among the 953 predominantly African American and Hispanic/Latino patients, 475 patients were randomly selected to receive a language-congruent, human reminder call, while 478 were assigned to receive no prior contact, (after we excluded 10 patients, scheduled for repeat appointments). In the experimental group, 275 patients adhered to their scheduled appointment, while 84 cancelled and 116 failed to attend. In the control group, 249 patients adhered to their scheduled appointment, 31 cancelled and 198 failed to attend. Human phone reminders in the preferred language increased adherence (RR 1.89, CI95% [1.42, 1.42], ($p <$ 0.01). The intervention seemed particularly effective in Hispanic patients, supporting our hypothesis of cultural congruence as possible underlying mechanism.
*Conclusions:* Human reminder phone calls prior in the patient's preferred language increased adherence with scheduled appointments. The intervention facilitated access to much needed care in an ethnically diverse, resource poor population, presumably by overcoming language barriers.

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## 1. Introduction

Poor adherence with scheduled appointments (PASA) remains a particular concern in inner-city chronic pain clinics, with PASA rates up to 80% [1–3]. Not only is PASA a significant financial burden for the institution [4,5], it causes frustration for providers [6]. PASA is a waste of scarce resources, considering the already considerable wait times for chronic pain consultations [7]. Without the benefit of a cancellation call, PASA deprives other patients of the opportunity to schedule an appointment [8]. On the other hand, PASA may indicate barriers to healthcare [9], depriving our most vulnerable patients of needed specialized pain services [1,10,11]. The reasons for missed appointments

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often without a cancellation call, have long been studied [12], but remain elusive [13]. We identified language as a barrier to access of chronic pain services, specifically to adherence with scheduled appointments [1]. We hypothesized that patient concerns about cultural incongruence may be ameliorated by human outreach in the patient's preferred language [1,7]. Based on retrospective cohort studies, we demonstrated that targeted health system improvements can improve access [2].

First generation Hispanic immigrants, i.e. those born outside the United States, may be especially vulnerable to discouraging experiences already during the pre-encounter process [7]. Actual or perceived discrimination in the pain clinic [14–17], for example concerns about opioid addiction or dependence triggered by minority status [18,19], can estrange patients [20] from their physicians and providers in addition to cultural and language barriers [2] and concerns about healthcare insurance coverage.

Disparities can arise in clinical encounters, if *providers* treat patients differently or if *patients* respond to (perceived) disparate treatment (demand side) [21], in our case patients may not adhere to scheduled appointments, if they feel not welcome or fear discrimination. With limited evidence available on how to influence the demand side of health care disparity in pain medicine [7,14,22], we postulated that native language personnel and unified clinics (seeing all patients in the same outpatient location with equitable access) helps to overcome such barriers, but that individualized outreach to patients by phone [13], in a language the patient understands, prior to scheduled appointments would establish a human rapport [23] before the actual encounter and improve adherence [1,2]. While PASA certainly imparts considerable costs to the institution [24], counter measures also consume resources and need to be justified to be financially sustainable considering the current pressures to cut cost [25].

We seek to investigate in sequential pragmatic clinical trials (PCT), which of the several language-targeted adjustments (Spanish certified staff, reminder calls in the preferred language, unified scheduling and clinic system for insured and uninsured, financial incentives to cover transport expenses…) to the appointment process [1,2] is most effective. In this first RCT, we investigate if a human reminder phone call, the day before their first appointment, in the patient's preferred language (Spanish versus English), improves attendance in our inner-city academic chronic pain clinic in the Bronx, NY, serving a resource poor, racially and ethnically diverse, predominantly Hispanic population. As a secondary exploratory data analysis (also predefined before our pragmatic trial was begun), we hypothesized that calling the patients before the appointment in their preferred language is more effective in Spanish speaking patients than in English speaking patients.

### 1.1. Objectives

This is a pragmatic clinical trial to investigate if a language centered intervention (a human reminder phone call, the day before their first appointment, in the patient's preferred language).

1. Increases attendance at scheduled appointment in an inner-city academic pain clinic,
2. Is more effective in Spanish speaking patients than in English speaking patients, in patients scheduled for a first appointment in an inner-city chronic pain clinic.

## 2. Methods

### 2.1. Regulatory review

In conducting this pragmatic trial to address healthcare disparities in pain medicine, we adhered to the research ethics principles of the Learning Health Care System Ethics Framework [26,27]. Our health systems investigation involved minimal risk for patients. Before the trial, chance (day of the week, staff available…) determined if patients received a reminder call before their appointment and in what language. The Albert Einstein College of Medicine Institutional Review Board approved the study and waived the requirement for informed consent. Our trial is registered with clinicaltrial.gov [ClinicalTrials.gov Identifier: NCT03101969].

### 2.2. Trial population and setting

All adult patients (age older or equal to 18 years) with a scheduled first appointment at the adult outpatient Pain Center at Montefiore Medical Center located in the Bronx, New York from October 2014 through October 2015 were included, regardless of race, ethnicity, and insurance status or if they attended, failed to attend, or cancelled the appointment. No patients were excluded except if they had a previous appointment in our clinic. We limited our analysis to initial (first) scheduled appointments in the hope that by doing so we would single out the effect of our telephone outreach on establishing an early rapport with the patient, prior to the confounding influence of the first provider encounter.

### 2.3. Power analysis and patient flow

We planned for an enrollment of 1000 patients. In our power analysis, we estimated that if the proportion of failure to attend in the intervention group were 30% compared to a proportion of 50% in the control group, we would need 172 patients for a power of 90% and a confidence level of 99%. We present the patient recruitment and retention in a CONSORT flow chart (Fig. 1: CONSORT Flow Chart). To increase the ecological validity of our study we engaged representatives of the participant predominantly Spanish population in the formulation of our a priori hypothesis and the study design and data collection [28], offered them coauthorship and when they declined, acknowledge their contribution in the acknowledgement, if they agreed.

### 2.4. Intervention

All patients scheduled for a first appointment were randomized to receive a human pre-appointment reminder phone call, the day before their scheduled appointment, in the patient's preferred language, (or no prior contact). This phone call was administered either in English, for patients who self-identified as English speakers or non-English non-Spanish speakers; or in Spanish, for patients or respondents who interactively self-identified as Spanish speakers in the phone conversation. Front desk staff who administered the Spanish speaking phone calls was either a native Spanish speaker or has received credentials certifying their ability to communicate in Spanish. The initial appointment was scheduled in English or Spanish dependent on the staff receiving the call and the preferences of the person requesting the appointment; no consent was sought and randomization (to receive a reminder call or not) was not discussed with the person scheduling the initial appointment.

### 2.5. Randomization, blinding and allocation concealment

Randomization was by computer generated tables. Neither the clinic personnel nor the providers (nurses or physicians) knew which intervention took place, (except if the patient revealed this spontaneously). Group allocation was concealed in opaque sealed envelopes, which were opened just prior to the phone call (to ensure allocation concealment.) Calls were made at random times, mostly in the afternoon. Only one attempt was made to call.

### 2.6. Primary outcome

We termed our primary outcome *adherence*, (defined as attendance at a first scheduled appointment as recorded in the clinic records). Using the term adherence, (without prejudice on those patients who had the

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