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1 **Pharmacist-led academic detailing intervention in primary care: A mixed methods**
2 **feasibility study**

3 **Introduction**

4 The International Continence Society (ICS) has defined urinary incontinence as “*the complaint*
5 *of any involuntary leakage of urine*” [1]. Despite the availability of evidence-based guidelines,
6 some patients do not receive recommended treatment because of their reluctance to report this
7 condition. In addition, when patients do seek help, many physicians are not familiar with the
8 latest information on the appropriate methods of evaluating and treating patients with this
9 condition [2].

10 Academic detailing is an interactive, convenient, and user-friendly approach that provides non-
11 commercial evidence-based medical information tailored to the needs of an individual. A key
12 tenant of the intervention is eliciting the provider's beliefs and attitudes and addressing those
13 specifically during the encounter [3]. Academic detailers (who are usually pharmacists, nurses,
14 or physicians) are trained to provide accurate, balanced, and up-to-date syntheses of the
15 evidence on a clinical topic in an engaging format with healthcare professionals in their work
16 environment [4]. These educational visits appear to be especially effective in improving
17 prescribing appropriateness in general practice [5]. Other approaches to optimise prescribing
18 behaviour include a healthcare professional such as a pharmacist carrying out medication
19 reviews and providing feedback to GPs [6]. Computerised decision support systems (CDSS)
20 are widely used tools that can support prescribing practice activities. They provide narrative
21 information usually in the form of an alert at the time of prescribing or at the end of the patient
22 consultation [7]. However, these approaches have their limitations, for example, there have
23 been conflicting results reported for medication reviews conducted by pharmacists [8,9]. CDSS
24 alerts can lead to alert fatigue, cognitive overload and desensitisation raising questions about
25 the effectiveness of decision support [10]. This suggests that other interventions such as
26 academic detailing are required to optimise clinical outcomes and patient care.

27 To date, no studies have evaluated the feasibility and acceptability of an academic detailing
28 intervention with General Practitioners (GPs) in Ireland. Prior to implementing an intensive
29 intervention like academic detailing on a national scale, it is prudent to evaluate the potential
30 effect in a feasibility study. Eldridge *et al.* have defined a feasibility study as a study asking
31 “*whether something can be done, should we proceed with it, and if so, how*”. They are used to
32 estimate important parameters that are needed to design larger studies, for example: feasibility
33 of recruitment, number of eligible participants, and selection of appropriate outcomes [11]. As
34 the burden of urinary incontinence can impact on the lives of people worldwide (especially
35 older adults), this would underline why a feasibility study of an academic detailing intervention
36 is needed.

37

38 **Aim of the study**

39 The aim of this study was to assess the feasibility and acceptability to GPs of a pharmacist-led
40 academic detailing intervention in Ireland.

41

42 **Ethics approval**

43 Ethical approval for this study was granted by the clinical research ethics committee of the
44 Cork University Teaching Hospitals, Cork (reference ECM 4 (s) 10/05/16 & ECM 3 (dddd) 07/03/17)
45 and the Mallow Primary Health Centre (MPHC), Cork Ethics Committee. Informed
46 consent was obtained from all individual participants included in the study.

47

48 **Methods**

49 **Study type**

50 In this study a convergent parallel mixed methods design was used. This involves the separate
51 collection and analysis of quantitative and qualitative data with the intent of merging the results
52 of both analyses. The premise of a mixed methods approach is that the use of quantitative and
53 qualitative methods in combination provides a better understanding of research problems than
54 either approach alone [12]. The aim was to collect, analyse, and interpret integrated quantitative
55 and qualitative data to assess the feasibility to GPs of an academic detailing intervention in
56 primary care. The quantitative prescribing patterns of the GPs and their qualitative responses
57 from the focus groups were integrated and synthesised.

58 **Setting**

59 This study was carried out in six General Practices in County Cork, Ireland. The primary
60 researcher (D.O.R.) arranged a meeting with the lead GP in each practice, and a brief summary
61 of the study was given. Other potential participants in each practice were contacted by
62 telephone and invited to participate. Twenty-three GPs participated in the intervention. All
63 GPs who participated in the study received a certificate of participation and a certificate for
64 their continuing professional development (CPD).

65 **Academic detailing training**

66 D.O.R. received formal training in academic detailing by attending a two-day workshop at the
67 National Resource Center for Academic Detailing (NaRCAD) in Boston, USA in May 2016.
68 The workshop provided a critical foundation for the role as an academic detailer. It included
69 sessions on the case for academic detailing and evidence-based medicine, planning a visit, use
70 of educational materials and role plays.

71 **Academic detailing materials**

72 For the academic detailing sessions, materials developed by the Alosa Foundation were used.
73 The Alosa Foundation in Boston is a non-profit organization and is independent of the
74 pharmaceutical industry. It produces educational materials and decision making tools for
75 Academic Detailers, and provides training on academic detailing internationally. The Alosa
76 Foundation granted the authors permission to use their educational materials for this study. The
77 printed materials consist of evidence-based information on the prevalence of urinary
78 incontinence, an overview of the pharmacological and non-pharmacological interventions, cost
79 of drugs to treat the condition, and key messages.

80 **Choice of topic**

81 Prior to commencing GP recruitment, D.O.R. met with three GPs to discuss an intervention
82 topic. The topic of urinary incontinence was chosen for the academic detailing intervention by
83 GPs because they highlighted that it was a topic not discussed regularly among themselves,
84 and currently their only source of information is provided by pharmaceutical drug
85 representatives.

86 **Piloting the intervention**

87 The academic detailing intervention was piloted with three academic GPs in May 2016 before
88 the study was commenced. The GPs reported that they were very satisfied with this overall
89 educational approach. The topic delivered and the educational materials used during the visit
90 were also described as being very beneficial and relevant.

91 **Delivery of the intervention**

92 The intervention was delivered face-to-face with each GP in their practice. D.O.R contacted
93 the GP's receptionist in advance to book a 15-minute time slot with each GP for the meeting.

94 One of the tenets of academic detailing is to provide evidence based information over a succinct
95 time period.

96 During the meeting, D.O.R provided the following key messages to GPs: (i) increase detection
97 of and distinguish incontinence type to guide treatment, (ii) identify and rule out reversible
98 causes of incontinence, (iii) encourage caffeine reduction, pelvic floor muscle training, and
99 weight loss as first-line treatments, and (iv) judiciously prescribe medications for urgency
100 symptoms (but not stress incontinence). GPs were encouraged to discuss these key messages
101 with their patients when they presented for their next GP appointment. After the meeting, GPs
102 were given a copy of the printed materials to use as a reference.

103 The academic detailing intervention was rolled out to participating GPs between June and
104 September 2016. Supplementary Figure I shows the timeline of the study.

105 **Quantitative method**

106 A before and after analysis of patient medical records was conducted. All patients aged ≥ 65
107 years with urinary incontinence treated by participating GPs were included. These patients
108 were identified by searching GP databases and notes. D.O.R. extracted data from medical
109 records at five time points: six and three months before the intervention (T_{-6}), (T_{-3}), at the time
110 of the intervention (T_0), and three and six months after the intervention (T_3), (T_6). For example,
111 if the intervention was delivered to a GP in June 2016, data extraction and audit of their patient
112 medical records was performed retrospectively in December 2016 for the following months:
113 December 2015, March 2016, June 2016, September 2016 and December 2016. Patients were
114 identified as having urinary incontinence based on a diagnosis by the GP or referral letters from
115 consultant urologists. In some cases, prescription drugs (e.g. mirabegron, tolterodine)
116 identified from medical records were used as proxies to indicate a diagnosis of urinary

117 incontinence. An assessment of patient medical records was carried out at five time points in
118 the study to identify if pelvic floor muscle training was documented.

119

120 The following criteria were applied to the patient data recorded:

121 **LUTS-FORTA criteria**

122 Drugs to treat lower urinary tract symptoms (LUTS) in older people aged ≥ 65 years are
123 classified on their appropriateness based on efficacy, safety, and tolerability using the Fit fOR
124 The Aged (FORTA) criteria. These criteria classify drugs for the treatment of LUTS into four
125 ordinal categories, A (absolutely: indispensable drug), B (beneficial: drugs with proven
126 efficacy), C (careful: drugs with questionable efficacy/safety profiles), and D (don't: avoid in
127 older people) [13].

128

129 **The Drug Burden Index (DBI)**

130 The DBI measures the cumulative exposure to anticholinergic and sedative medicines in older
131 people and its impact on physical and cognitive function [14]. For each drug, the DBI ranges
132 from 0-1, with 0 being no burden, 0.5 being exposure to the minimum daily dose, and upwards
133 to 1 as the dose is increased exponentially [15]. In this study, the list of drugs with clinically
134 significant anticholinergic and sedative effects were defined from a composite list developed
135 from a review by Duran *et al.* 2013, the Anticholinergic Cognitive Burden (ACB) scale
136 developed by Boustani *et al.* 2008, and from a study published by Ailabouni *et al.* 2017 [16-
137 18] . This composite list consisted of 133 drugs (See Supplementary Table I).

138

139

140 **Anticholinergic Cognitive Burden (ACB) scale**

141 The cumulative effect of taking multiple medicines with anticholinergic properties is defined
142 as the anticholinergic burden [19]. The ACB scale is based on a systematic literature review of
143 medicines with known anticholinergic activity. The scale consists of 88 drugs with known
144 anticholinergic activity and assesses individual drugs that have none, possible, or definite
145 anticholinergic properties with a score ranging from 0 to 3 [17].

146 D.O.R. applied the LUTS-FORTA, DBI, and ACB to patient-related data retrieved from the
147 electronic medical records. For validation purposes, the three types of criteria were applied
148 independently by a second member of the research team to a random 10% sample of the data.

149

150 **Outcomes**

151 The three outcomes of interest were the overall changes in scores of LUTS-FORTA, DBI, and
152 ACB in the patients.

153

154 **Statistical analysis**

155 It is important to note that a feasibility study is not a hypothesis testing study [20]. One of the
156 key aspects of these studies is that they do not evaluate effectiveness as they are not powered
157 to do so [21]. The main focus of this study was to assess feasibility of the intervention, and
158 therefore the data were analysed using descriptive statistics. Continuous variables were
159 presented as mean with standard deviation (SD) and range, or median with interquartile range
160 (IQR), as appropriate, and categorical variables as frequency (percentage).

161

162 **Qualitative method**

163 After the intervention was delivered to participating GPs by D.O.R., focus groups were
164 conducted with GPs to explore its feasibility and acceptability.

165 The focus groups were carried out by three researchers (E.H., C.S., and S.B.) between July and
166 November 2016. A topic guide was developed based on discussion and consensus among all
167 authors. The topic guide was iteratively refined after each focus group, was transcribed, and
168 analysed to pursue emerging themes.

169 All focus groups were anonymised and fully transcribed and saved in QSR International NVivo
170 Qualitative Data Analysis Software (V.10.22) to facilitate analysis. Data were analysed using
171 thematic analysis. This flexible and useful research approach can potentially provide a rich and
172 detailed account of the data [22].

173

174 **Standardised reporting guidelines**

175 The Good Reporting of a Mixed Methods Study (GRAMMS) framework was used to inform
176 reporting of the findings [23]. (See Supplementary Table II).

177

178 **Results**

179

180 **Quantitative results**

181 The characteristics of 154 patients diagnosed with urinary incontinence included in the study
182 are detailed in Table I. The documentation of pelvic floor muscle training was reported in 15%
183 of patient medical records at only one-time point in the study (T-6).

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LUTS-FORTA score

Figure I shows the number of patients prescribed drugs identified by the LUTS-FORTA criteria over time. According to the criteria, no patient was prescribed a drug rated in category A (absolutely: indispensable drug) at any time point. There was an increase in the number of patients prescribed drugs in category C (careful: drugs with questionable efficacy/safety profiles), over time, while there was no change in the number of patients prescribed drugs in category B (beneficial: drugs with proven efficacy) and D (don't: avoid in older people) over time. Supplementary Table III shows the drugs that were identified by the LUTS-FORTA criteria in this study.

Drug Burden Index

Almost 65% (100/154) of patients did not show any change in drug burden over time.

Anticholinergic cognitive burden (ACB) scale

Thirty-four percent of patients at T₋₆ months and 31% of patients at T₆ months had an ACB score of 0.

Qualitative results

Five focus groups were conducted in total (n=14 GPs). The mean number of participants per focus group was 3 (range 2 to 4). The focus groups ranged from 19 minutes to 48 minutes. The number of GPs working in a practice ranged from 1 to 7. The characteristics of GPs interviewed are detailed in Table II. Quotes supporting each theme/sub-theme are presented in Table III.

210 **Themes**

211 **Theme 1: The Academic detailing experience**

212 **Subtheme:** Convenience of academic detailing

213 Participants highlighted the convenience of the academic detailing session being carried out in
214 their working environment. They welcomed this educational visit being delivered with little
215 disturbance to their daily practice. They also reported that they are prepared to block out some
216 of their working time to accommodate this source of evidence-based information.

217

218 This was in contrast to the alternative sources of evidence-based information that are currently
219 available for GPs, for example: attending conferences, continuing medical education meetings,
220 or educational events on topics. Participants reported the frustration at not being able to attend
221 courses of interest due to the demands of their work schedule.

222

223 **Subtheme:** The interaction between participant and academic detailer

224 Participants described the interaction between the GP and the academic detailer as being
225 important to the success of the intervention. They reported that the session worked because it
226 felt relaxed and free of pressure. This was in contrast to their experience with some
227 pharmaceutical drug representatives who they described as having an aggressive approach
228 combined with an overload of information, which seemed to aggravate participants.

229

230

231

232 **Subtheme:** The educational materials

233 Participants said they liked the educational materials because they had a clear layout and were
234 easy to follow. They reported that they valued the succinct nature of the key messages, while
235 the tables and figures were presented in a straightforward way.

236

237 **Subtheme:** The topic: Urinary incontinence

238 The topic of urinary incontinence was agreed by a number of GPs prior to rolling out the study.
239 Participants reported that this topic was relevant and suitable to general practice. The relevance
240 of this topic facilitated the delivery of the intervention to GPs.

241

242 **Theme 2: Behaviour change**

243 Participants described the likelihood of changing their behaviour in treating patients with
244 urinary incontinence following the intervention. However, this change in behaviour could be
245 influenced by environmental resources, such as the availability of primary care
246 physiotherapists.

247

248 **Subtheme:** Knowledge gained

249 Participants were asked if they had gained any knowledge from the intervention. Some
250 participants of recent medical experience were not aware of the important role that non-
251 pharmacological methods play in treating urinary incontinence.

252

253 For some participants, the intervention served to refresh their knowledge with the topic rather
254 than gain new knowledge as some of the treatment options may be more commonly used than
255 others.

256 **Theme 3: Sustainability**

257 **Subtheme:** Academic detailing ownership

258 Participants were asked how this type of educational intervention could be rolled out to a wider
259 group of GPs in Ireland. Some suggested that it could be affiliated with the Irish College of
260 General Practitioners (ICGP), the professional and educational body for general practice in
261 Ireland. The association with this recognised body could enhance the credibility of academic
262 detailing among GPs.

263

264 **Subtheme:** Alternative formats of educational material

265 Participants suggested an online version of the educational material, which would be easier for
266 them to manage in a setting where print materials over-accumulate or go missing.

267

268 **Subtheme:** Desire for practice staff involvement

269 Participants highlighted the importance of incorporating the wider members of the practice
270 team in the academic detailing sessions. This is especially significant given the expanded role
271 of nurses in primary care.

272

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274

275 **Subtheme:** Future participation

276 Participants were asked if they would be interested in participating in future academic detailing
277 studies. All indicated a willingness to do so.

278

279 **Discussion**

280 This study used a mixed methods approach to explore the feasibility and acceptability to GPs
281 of a pharmacist-led academic detailing intervention.

282 Participants described the possibility of behaviour change following the intervention; however,
283 this was partly dependent on the availability of primary care resources such as physiotherapists.

284 In Ireland, public patients are often on a waiting list to attend primary care physiotherapists.

285 Pelvic floor muscle training is an effective treatment for women with urinary incontinence and
286 these exercises are often demonstrated by physiotherapists [24]. Therefore, if academic

287 detailing interventions are successful, then the treatment modalities recommended by academic

288 detailers need to be resourced. Participants described the educational materials as being high

289 quality. These materials contain evidence-based information on the prevalence of urinary

290 incontinence, an overview of the interventions and cost of drugs to treat the condition, and key

291 messages which may be very beneficial for GPs. However, if this information is not easily

292 retrievable for GPs then they may not be used as a treatment resource during a patient

293 consultation [25]. This may have limited the change in prescribing outcomes in the study.

294 Participants called for these materials to become available as an online resource as they could

295 be of value in optimising the diagnosis and management of urinary incontinence.

296

297

298 **Comparison with existing literature**

299 Allen *et al.* used a mixed methods study (a questionnaire and semi-structured telephone
300 interviews) to explore family physician perceptions of academic detailing and identified several
301 factors that encourage its use. They were: the relevance of the topic, the evidence-based
302 approach adopted, and the educational material used [26]. These findings are similar to those
303 in our study. The GPs selected the topic of urinary incontinence for the intervention and
304 described it as relevant. They welcomed the idea of evidence-based information being
305 presented to them in their practice and they also described the educational materials used as
306 being of high quality. Soumerai recommends that educational materials should be brief and
307 clearly presented [27]. For this intervention, all GPs received one visit from the detailer,
308 however research has indicated that frequent reinforcement visits can optimise behaviour
309 change [28]. In this study, GPs indicated a willingness to participate in future academic
310 detailing studies. Hartung *et al.* and Anthierens *et al* also reported similar findings [4,25].

311 The measures of prescribing assessed: the LUTS-FORTA, DBI, and ACB showed minimal or
312 no change in their scores following the intervention. As a feasibility study, this study was not
313 conducted with a view to effecting change in prescribing outcomes, rather to see if the
314 intervention was feasible and acceptable to GPs and whether this preliminary research was
315 appropriate for successful implementation in subsequent larger studies. Our findings suggest
316 GPs are open to this type of intervention, and recruitment and follow-up are possible. A larger
317 study is required to more accurately examine the potential for meaningful change in clinical
318 care.

319 The choice of topic for the academic detailing intervention was an important influence on GPs'
320 readiness to participate in the study. It was possible that GPs chose urinary incontinence
321 because of the difficulty in minimising the side-effects with associated treatments e.g.

322 anticholinergic effects and the limited availability of pharmacological options. The choice of
323 urinary incontinence thus addressed GPs' learning needs but made evaluation of changes in
324 prescribing difficult as many of the treatment options highlighted to GPs were non-
325 pharmacological. Alternative topics for example, hypertension, atrial fibrillation, opioids in
326 chronic pain may provide more scope to examine subsequent change in prescribing behaviours.

327

328 **Strengths and limitations**

329 To enhance the validity of the quantitative results, a sample of the data were independently
330 reviewed by two healthcare professionals. The focus groups were arranged with GPs over a
331 five-month period and this facilitated prolonged engagement with the data.

332 Although 23 GPs participated in the intervention, only 14 were available to attend the focus
333 groups. All participating GPs were contacted in advance about the focus groups; however,
334 some were away on the scheduled date while others who agreed to participate had to cancel at
335 the last minute due to clinical emergencies or late clinics. One solution to this issue would be
336 to organise them outside of practice hours e.g. at continuing professional development
337 meetings.

338 The findings from this study may be beneficial to other researchers when developing their own
339 study designs as they may enhance their approach or avoid similar pitfalls [29]. In future
340 studies, a follow-up visit could be arranged with the GPs after four to six weeks to reinforce
341 the key messages from the first visit and to identify if they have been successfully
342 implementing any suggested changes. It would also give the academic detailer an opportunity
343 to answer any additional questions that the GPs may have. Implementing academic detailing
344 on a broader scale may benefit from, a "train the trainer" approach. Instructors could train their
345 colleagues and this would help to build a pool of competent academic detailers. Finally,

346 randomized controlled trials that are methodologically robust and have large sample sizes
347 should be considered [30].

348

349 **Conclusion**

350 This mixed methods study explored the feasibility and acceptability to GPs of a pharmacist-
351 led academic detailing intervention. Overall, participants reported that this evidence-based
352 approach was beneficial and welcomed further visits. The selection of a relevant topic appeared
353 to be an important aspect of their positive response. The printed educational materials were
354 reported as being well-presented and easy to follow, however an online version was preferred.
355 Our findings provide a useful platform for the evaluation of academic detailing in primary care
356 on a larger scale. Further research is needed in a larger population to determine the impact on
357 patient outcomes and the cost-effectiveness of academic detailing.

358

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361 Additionally, gratitude is expressed to Alosa Health, who developed the academic detailing
362 intervention “Evaluating and managing urinary incontinence”, and granted the authors
363 permission to use their educational materials for this study. Alosa Health is a US non-profit
364 which specialises in academic detailing. This body evaluates the evidence on clinical topics
365 and synthesises the information into a 'user-friendly' format to be used in the interaction
366 between the academic detailer and the clinicians. They provide information to improve clinical
367 decision making and have no affiliation with any pharmaceutical company.

368

369 **Conflicts of interest**

370 There are no conflicts of interest to declare.

371

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