

A survey of participants satisfaction of a nurse practitioner-led fast-track outpatient clinic for rhythm and conduction disorder

Running title: nurse-led fast-track outpatient clinic.

Abstract

Aims: With a nurse-led fast-track clinic for rhythm and/or conduction disorders (FT-RCD) we aimed to enhance accurate diagnostic course with high patient satisfaction.

Methods: With the initiation of a nurse-led FT-RCD we evaluated timely diagnosis for patients with complaints of palpitation, syncope, presyncope and fatigue who were given rapid access to diagnostics. In all patients a range of non-invasive cardiac investigations were performed including ECG, trans-thoracic echocardiography (TTE), laboratory analysis, exercise tolerance testing (ETT), ambulatory ECG monitoring and chest X-ray. General practitioner (GP) initiates the process by faxing a referring letter requesting fast track diagnostics for patients suspected of rhythm and/or conduction disorders. A questionnaire, appointments and schedule of various investigations are sent by the doctor's assistant (DA) to the patient. The nurse practitioners (NP) take medical history, perform physical examination and conduct an ETT. All results are reviewed by a cardiologist and final diagnosis is established.

Results: A total of 483 patients were investigated. Of those, 283 patients (58.6%) were reassured and discharged. The mean lead time (5.5 weeks) of FT-RCD to diagnosis was shorter compared with regular care (8 weeks), 31% reduction of time. Ten patients (10/483 = 0,20%) were analyzed by tilt table test for assessment of postural orthostatic tachycardia syndrome, eight patients (8/483 = 0,16%) were forwarded for analysis of obstructive sleep apnea syndrome and six patients (6/483 = 0,12%) were referred for electrophysiological studies. Survey was sent to participants after they attended the nurse-led clinic. A total of 233

27 attendees responded (48.2%). The nurse-led clinic was graded as good-excellent by 88% of
28 respondents.

29 **Conclusions:** The majority of referred patients to fast track diagnostic facility are reassured
30 and referred back to the primary care sector. Access to a nurse-led fast-track diagnostic
31 facility considerably reduces diagnostic intervals with good to excellent satisfactory
32 experience evaluated by patients.

33

34 **Keywords:** Nurse-led outpatient clinic, fast-track clinics, rhythm and conduction disorders,
35 participants satisfaction.

36 **Introduction:**

37 Nurse-led out-patient clinics are widely applied in acute [1,2] and chronic [3,4] disorders and
38 are getting more popular in patient care owing to current financial cutoffs. There is growing
39 substantial international evidence that nurse-led clinics provide a comprehensive level of
40 service of patient teaching and education, quality of life and follow-up of different acute
41 conditions and chronic disease entities.

42 In our department in 75% of outpatient cardiac patients, through the regular care pathway, the
43 lead time to diagnosis was 8 weeks. Three planned hospital visits are required. In early 2014,
44 we started a nurse-led fast-track rhythm and/or conduction disorders (FT-RCD). The team
45 included cardiologists, two experienced cardiology-trained nurse practitioners and doctors
46 assistants. The main objective is to provide high quality, fast and reliable diagnostics to
47 patients with possible rhythm and / or conduction disorders in one session and according to
48 current guidelines [5,6]. Of course increasing patient satisfaction is considered highly
49 important. From 2014 to 2016 an extension occurred from two to three day part sessions per
50 week. In total, 483 patients were analyzed at the FT-RCD.

51

52 **Background**

53 Nurse-led outpatient clinics for acute and chronic disorders are increasingly growing.
54 Not only nurse-led outpatient [7] clinics are booming but also in-hospital [1] nurse-led
55 practices are increasingly evolving. In a nurse-led fast-track outpatient clinic, the patient
56 receives all necessary examinations on a part of the day basis, a diagnosis is made and a
57 treatment plan is issued. The nurse practitioner (NP) has an important position throughout the
58 entire course of FT-RCD. Expertise, ownership, development, organization and collaboration
59 with other disciplines are important and necessary features for the NP operating at fast track
60 clinic.

61 In the late nineties of last century, patient satisfaction in a nurse-led clinics has been tested in
62 patients with rheumatoid arthritis either at a physician specialist-led clinic or a nurse-led
63 clinic, reporting significant increase in overall satisfaction at the nurse-led clinic [8]. In
64 another study by Koksvik et al., they demonstrated in 68 patients with inflammatory
65 arthritides monitored either by physician-led or nurse-led clinic, assessed by Leeds
66 Satisfaction Questionnaire, that overall satisfaction in the nurse-led clinic is prevalent without
67 deterioration of clinical status [9]. Considering patient satisfaction with nurse-led clinic in an
68 outpatient clinic for oncology care, patient satisfaction was stable over time. More than 90%
69 rated the nurse practitioner as good, the waiting time as acceptable and the length of
70 appointment as sufficient [10]. Recently, in a systematic review of 3965 participants, Randall
71 et al., emphasized a positive (subjective and objective) patient satisfaction of nurse-led clinics
72 in comparison with physician-led clinics [11]. The impact of atrial fibrillation effect on
73 quality of life will be studied in a comparison of nurse-led care versus standard care practice
74 and the enrollment has already started on August 2016 that will be completed by Spring 2018
75 [12]. deThurah et al., found in a meta-analysis (723 participants) that after one year follow-up
76 no difference existed of disease activity between nurse-led and physician-led clinic in patients

77 with rheumatoid arthritis. A suggestion is made to promote the future implementation of
 78 nurse-led clinics for follow-up of RA patients under the supervision of rheumatologist [13].
 79 In our experience, the FT-CRD had a good rating with NP scoring 87.5%, cardiologist
 80 scoring 79.3%, waiting time assessed as 88% and length of duration rating of 93.6%.
 81 Currently, due to lack of publications regarding patient satisfaction of participants analyzed
 82 for rhythm and/or conduction disorders, we sought to present our experiences.
 83 To evaluate adequacy of both nurse-led outpatient clinic for assessment of rhythm and/or
 84 conduction disorders and participant satisfaction in the context of fast-track diagnostics.
 85 Results are discussed and assessment of participant satisfactions are presented.

86 **Methods**

87 Since November 2014, our hospital has a nurse-led fast-track outpatient (FT-RCD) clinic,
 88 (Figure 1). Patients with the following complaints were referred to the FT-RCD: presyncope
 89 and syncope, dizziness, palpitation complaints, extrasystoly, irregular heartbeat, not yet
 90 proven atrial fibrillation, screening request for familial electrical heart disease (Table 1).
 91 Table 1: Reason for referrals to the fast track outpatient clinic for rhythm and conduction
 92 disorders.

Referrals	n = 483 (%)
Palpitation	336 (69.6%)
Syncope	64 (13.3%)
Presyncope/dizziness/fall	50 (10.4%)
Screening	14 (2.9%)
Bradycardia	4 (0.8%)
Dyspnea	4 (0.8%)
Rapid heart rate	4 (0.8%)
Presumed abnormal ECG Exclusion of bigeminies (1x) and long QT	3 (0.6%)

interval (2x)	
Irregular heart rate	2 (0.4%)
Fatigue	2 (0.4%)
Total	483

93

94 **Processing and routing of FT-RCD outpatient clinic**

95 The nurse-led fast-track process begins with a referral letter sent by fax from the General
96 Practitioner (GP). The cardiologist determines the referral letter for correct indication. In
97 principle, patients for FT-RCD will only be eligible if they are new referrals. Triage of
98 referrals is done by the cardiologist. After the first triage, the referrals are checked by a nurse
99 practitioner (NP). The doctor's assistant (DA) calls the patient providing information about
100 the investigations and time schedule. After informing the patient, the patient will always be
101 given the opportunity to choose a regular appointment. Accordingly, the doctor's assistants
102 will schedule the arrangements. In the pre-visit phase, a 24 or 48 hours, depending on
103 availability, Holter registration will take place together with laboratory determinations (Hb,
104 leukocytes, platelets, renal function and thyroid function). Also, the patient is sent a
105 questionnaire (Figure 2) which can be completed in writing and also digitally (via DigiD).
106 The questionnaire raises questions about patients' complaints, such as the nature of the
107 complaint, the frequency and the situations or conditions in which it occurs.

108 **Staff of the FT-RCD outpatient clinic**

109 The team consisted of cardiologists, experienced cardiology-trained nurse practitioners and
110 doctor's assistants. The cardiologists have primary responsibility for the clinic. The clinic is
111 managed by NP (Master Advanced Nurse Practitioner) with the assistance of qualified
112 doctor's assistants (DA).

The fast-track takes place during a day care program, with all care concentrating around the patient and optimal preparation for the examinations. On the day of the visit, the data is verified. In a fast-track, a group of four patients will launch with a plenary introduction session by the NP's explaining the content of the research program. The doctor's assistant will ensure coordination of the examinations, chest X-ray, exercise tolerance testing and echocardiography. Doctor's assistants perform an ECG and measure blood pressure. The NP consult including medical history and special anamnesis in combination with assessment of the questionnaire. Subsequently physical examination and exercise tolerance testing (ETT) are performed in all patients. Transthoracic echocardiography (TTE) is performed by an analyst and assessed by the cardiologist. Once all investigations have been carried out, evaluation of the results by both the NP and the cardiologist takes place. Subsequently, an individual consultation will be done for each patient conducted by cardiologist and NP, and an evolved treatment plan and follow-up are proposed. The doctor's assistant who is also present at the interview immediately reporting the findings and the treatment proposal that is being processed in a letter to the GP. All patients will be sent a copy of this letter home with a survey (Figure 3) regarding their experiences and degree of satisfaction. In this survey, the participants are requested to give feedback of their findings and their experiences throughout the entire trajectory of the fast track, such as time, privacy and experience during the investigations and consultations.

Results

From 3 November 2014 until 31 December 2016, we have seen a total of 483 patients. Regarding the year 2015, we experienced an increase of over 33%. More women (61.6%) were seen than men. The mean age was 54 years (range 17-93 yrs). Patients with palpitation complaints were most frequently referred to the FT-RCD (69.5%) (Table 1).

Lead time and visits to the FT-RCD clinic

The referral fax was processed within 1.6 days. In the regular outpatient clinic, the lead time to diagnosis was 8 weeks. The lead time to diagnosis in the FT-RCD was 5.5 weeks. This is a reduction of 31%. It is worth mentioning that the venous puncture for laboratory testing, the planning and the application of the ambulatory Holter monitoring have been processed in this time. The FT-RCD requires only two hospital visits.

Electrocardiography

Three patients were referred for alleged ECG abnormalities. Upon repeating ECG we found no remarkable disorders.

Exercise tolerance testing

ETT was normal in 78.4% of patients. In 12.2% the test was equivocal. In 9.4% of cases, the abnormal findings were of ischemic changes or rhythm disorders.

Echocardiography

This was normal in 78.5% of cases. In some cases, follow-up was necessary for clear relationship with hypertension.

Chest X-ray

It was normal in 78.5% of the cases. In few cases, characteristics of COPD were detected. In five other cases, the pulmonary physician was consulted, but after analysis, the patients were reassured.

Laboratory investigations

Laboratory tests were abnormal in nine patients who were referred to another specialty for further analysis. Two patients (n=2) were referred to the Ear-nose-throat (ENT) outpatient clinic, one (n=one) to the GIT-physician, the other six patients (n=six) to the internal medicine and endocrinology outpatient clinic (4x dyslipidaemia, 1x low hemoglobin level and 1x thyroid disorder). In all other cases of laboratory discrepancies, the GP was advised for further analysis and treatment.

163 **Back referral to the primary care sector or referral to other diagnostic facilities**

164 Eventually, 283 patients (58.6%) could be reassured and referred back to their GP (Table 2).

165 It is remarkable to mention that in the year 2016, 29.5% of patients were referred back to the

166 GP for control or regulation of hypertension.

167 Table 2: Outcomes of fast track outpatient clinic for rhythm and conduction disorders.

	n = 483
Reassurance/ referral back to general practitioner	283
Newly initiated medication	78
Revision/follow-up	61
Implantable loop recorder	11
Cardiobeeper	4
Referral to electrophysiology unit	6
Hypertension	6
Coronary angiography	3
Pacemaker implantation	2
Cardiomyopathy	1
Genetic counseling	1
Head-up-tilt for assessment of postural orthostatic tachycardia syndrome	10
Obstructive sleep apnea syndrome	8
Referral to other specialty	
Ear-nose-throat clinic	2
Internal Medicine/gastro-intestinal tract	7

168

169 **Obstructive sleep apnea syndrome (OSAS)**

Eight patients ($8/483 = 0,16\%$) were referred for exclusion or detection of obstructive sleep apnea syndrome (OSAS). In four patients, diagnosis of OSAS could be established and could be excluded in two other patients. Two patients quit from further analysis of OSAS.

Ambulatory ECG recording and referral to Electrophysiological studies (EPS)

Six patients ($6/483 = 0,12\%$) were referred for electrophysiological studies (EPS), because of supraventricular tachycardia (n=one, Wolff-Parkinson-White syndrome (WPW)), n=four, Atrio-Ventricular Nodal Re-entry Tachycardia (AVNRT) and n=one, Atrio-Ventricular Re-entry Tachycardia (AVRT) for which n=four, radio frequency (RF) ablation occurred. In two patients watchful waiting policy was followed.

Postural orthostatic tachycardia syndrome (PoTS)

Ten patients ($10/483 = 0,20\%$) were directed to tilt table test for assessment of postural orthostatic tachycardia syndrome (PoTS).

Survey of participants satisfaction and assessment of quality of the FT-RCD (Figure 4)

A survey for participant satisfaction was sent to all participants. Of the 483 patients, 233 have returned the survey (48.2%). Regarding the quality of the FT-RCD, 61.8% of respondents showed that FT-RCD was good. Approximately one-quarter (26.2%) of respondents gave this an excellent grade. 10.7% of respondents found this to be sufficient or satisfactory. The total duration of the FT-RCD was 3.5 to 4 hours. This was considered neutral by 88% of respondents. 5.6% of respondents thought it was good enough and 6.4% experienced this as too long. With regard to the final interview, 95% of respondents were satisfied. The speed, examinations and diagnosis on one part of the day are experienced as very positive. The majority of respondents (98.2%) graded the entire FT-RCD trajectory for 8.1 scale. In this case, 98.2% of respondents gave a minimum of 6 or more. The speed, examinations and diagnosis on one part of the day are experienced as very positive. The contact with the NP was experienced as excellent (87.5%) and for the cardiologist this was 79.3% (Figure 4).

195 Participants satisfaction with nurse-led outpatient clinics was rated as excellent by the
196 majority of patients (87.5%). Around 93.6% found the total duration of the fast-track (3.5 to 4
197 hours) as acceptable. Approximately 61.8% rated the information given at the nurse-led
198 clinics as sufficient.

199 **Discussion**

200 The main outcomes of our findings are that the majority (59%) of referred patients to our
201 nurse-led fast-track diagnostic facility of rhythm and conduction disorders are reassured and
202 referred back to the primary care sector. Access to a nurse-led outpatient clinic considerably
203 reduces (31%) diagnostic intervals with good to excellent satisfactory experience evaluated
204 by the majority of (88%) participants.

205 **Nurse-led clinics**

206 **Acute coronary syndrome (ACS), post-infarction and post cardiac surgery**

207 With regard to the in-hospital setting, clinical nurse specialists programs for stable post-
208 infarction patients have been proven to be feasible and beneficial resulting in better outcomes
209 than conventional care performed by cardiology residents regarding recurrent myocardial
210 infarction and decreased significantly the length of hospital stay [1]. The same is held true for
211 nurse specialists conducted programs for post-operative patients recovering from cardiac
212 surgery or transferred from the coronary care after uncomplicated acute coronary syndrome
213 to the general cardiology ward [2].

214 **Atrial fibrillation (AF)**

215 With respect to nurse-led clinics in atrial fibrillation, as early as 1998, Quinn described the
216 safety of nurse-led elective direct current electric cardioversion (DC-ECV) of patients with
217 AF admitted as day cases to a short-stay ward. The reported success rate was 54% (40/74)
218 [14]. In 2004, Currie et al., reported on nurse-led DC-ECV without direct physician
219 supervision but facilitated by an anaesthesiologist in a stand-alone day surgery unit with a

success rate of 92% (131/143) of restoring sinus rhythm [15]. Shelton et al., reported their experience of nurse-led elective DC-ECV in 436 patients with persistent AF in a dedicated hospital day-unit conducted by trained specialist nurses accompanied with an anaesthesiologist reaching a success rate of 83.7% and adverse events of a less than 0.5%, predominantly transient bradycardia which resolved within 72 hours. Discharge of 99.6% of all patients was achieved the same day. They reported no mortality [16]. In the United kingdom, outpatient nurse-led elective DC-ECV for symptomatic persistent AF is associated with cost reduction of 61% [7]. The impact of AF effect on quality of life will be studied in a comparison of nurse-led care versus standard care practice conducted by Smigorowsky et al.; the enrollment has already begun August 2016 and will be completed by Spring 2018 [12].

Stable bronchiectasis: In the early years of the current century, Sharples et al., compared in a randomized manner 80 patients between nurse-led or respiratory physician-led clinics. The reported data showed a better health related quality of life and slightly more hospitalization in the nurse-led clinic, both were statistically not significant [17].

Hypertension

Regarding nurse-led hypertension clinic, such nurse-led clinic in general practice has proven efficacious reporting reduction of systolic blood pressure in 46% of enrolled subjects [4].

Oncology care

Addressing the oncology care, nurse-led clinic for rehabilitation of cancer female patients with gastrointestinal side effects after pelvic radiotherapy proved to be efficacious by improving patients quality of life, enhancing psychosocial well being and giving continuity for the long-term cancer care [18]. In a comparison of nurse-led follow-up of patients with lung cancer versus conventional medical follow-up; patient acceptability of the nurse-led follow-up service was high (75%) with significant better scores of satisfaction subscales.

Moreover, overall satisfaction of general practitioners was comparable in both follow-up groups [19].

Rheumatoid arthritis (RA)

Concerning RA, interview of patients with RA visiting nurse-led clinic revealed the need for a holistic approach to patient care [3]. Furthermore, Dougados et al., demonstrated in a prospective multicentre randomized controlled clinical trial (RCT) that nurse-led program is beneficiary on comorbidity management and patient self-assessment of RA disease activity [20]. Recently, in another RCT conducted by Larsson et al., compared nurse-led clinic versus physician-led clinic found that patients with low disease activity or in remission can be monitored with a reduced resource use and at a lower annual cost by a nurse-led service without difference in clinical outcomes [21].

Chronic kidney disease (CKD)

Assessment of patient satisfaction in a multicentre evaluation of nurse-led clinics of CKD, Coleman et al., reported that the majority of the patients (84%) were highly satisfied with the quality of service provided by the nurse and suggested further optimization of communication strategies for better improvement of care [22].

Diabetes mellitus

A multi-centre randomized controlled trial of a nurse-led intervention of life style modification program compared with standard care to reduce cardio-metabolic disorders and decrease future risk of cardiovascular disease and diabetes in subjects with metabolic syndrome was conducted in 2015 with an extended 5 year follow-up. This trial will provide evidence for contemporary data and information regarding the potential benefit and role of remote nurse-led clinics in primary prevention [23].

Future perspective

In our institution, plans will be made to reduce the total duration of the FT-RCD to two hours. This will require logistical adaptation. If the ambulatory ECG recording and blood analysis could take place in general practitioner practice, the lead time would be reduced considerably.

Limitations

One possible limitation of this study is the small sample size. Furthermore, no analysis has been made for cost effectiveness of the current fast-track rhythm and conduction disorders nurse-led clinic in this secondary care setting. Further studies for analysis of cost effectiveness, satisfaction of specialist physician related to release of the work load may be needed.

Conclusions

Nurse-led fast-track clinic reduced the lead time by 31%.

The number of planned hospital visits could be reduced to two visits.

Nearly 60% of patients on the FT-RCD could be reassessed and discharged immediately after completeness of the investigations.

A total of 93% of respondents were satisfied with the duration of the fast track clinic and 95% were satisfied with the final interview.

Finally, the overall satisfaction and rating of the nurse-led FT-RCD by the respondents was 8.1 on a scale from one to ten.

288

Reference List

289

290 [1] C.J.Broers, N.Sinclair, T.J.van der Ploeg, T.Jaarsma, D.J.van Veldhuisen, V.A.Umans, The post-
291 infarction nurse practitioner project: A prospective study comparing nurse intervention with
292 conventional care in a non-high-risk myocardial infarction population, *Neth.Heart J.*17 (2009) 61-67
293 <https://doi.org/10.1007/BF03086219>
294 PMID:19247468 PMCID:PMC2644381.

295 [2] M.A.Wit, A.J.Bos-Schaap, R.W.Hautvast, A.A.Heestermans, V.A.Umans, Nursing role to improve
296 care to infarct patients and patients undergoing heart surgery: 10 years' experience, *Neth.Heart J.*20
297 (2012) 5-11
298 <https://doi.org/10.1007/s12471-011-0225-y>
299 PMID:22194095
300 PMCID:PMC3247632.

301 [3] S.V.Bala, K.Samuelson, P.Hagell, B.Svensson, B.Fridlund, K.Hesselgard, The experience of care at
302 nurse-led rheumatology clinics, *Musculoskeletal.Care.*10 (2012) 202-211
303 <https://doi.org/10.1002/msc.1021>
304 PMID:22745012.

305 [4] S.C.Dean, S.M.Kerry, T.K.Khong, S.R.Kerry, P.Oakeshott, Evaluation of a specialist nurse-led
306 hypertension clinic with consultant backup in two inner city general practices: randomized
307 controlled trial, *Fam.Pract.*31 (2014) 172-179
308 <https://doi.org/10.1093/fampra/cmt074>
309 PMID:24356073.

310 [5] C.Blomstrom-Lundqvist, M.M.Scheinman, E.M.Aliot, J.S.Alpert, H.Calkins, A.J.Camm,
311 W.B.Campbell, D.E.Haines, K.H.Kuck, B.B.Lerman, D.D.Miller, C.W.Shaeffer, W.G.Stevenson,
312 G.F.Tomaselli, E.M.Antman, S.C.Smith, Jr., J.S.Alpert, D.P.Faxon, V.Fuster, R.J.Gibbons, G.Gregoratos,
313 L.F.Hiratzka, S.A.Hunt, A.K.Jacobs, R.O.Russell, Jr., S.G.Priori, J.J.Blanc, A.Budaj, E.F.Burgos, M.Cowie,
314 J.W.Deckers, M.A.Garcia, W.W.Klein, J.Lekakis, B.Lindahl, G.Mazzotta, J.C.Morais, A.Oto, O.Smiseth,
315 H.J.Trappe, ACC/AHA/ESC guidelines for the management of patients with supraventricular
316 arrhythmias--executive summary. a report of the American college of cardiology/American heart
317 association task force on practice guidelines and the European society of cardiology committee for
318 practice guidelines (writing committee to develop guidelines for the management of patients with
319 supraventricular arrhythmias) developed in collaboration with NASPE-Heart Rhythm Society, *J Am*
320 *Coll Cardiol.*42 (2003) 1493-1531
321 <https://doi.org/10.1161/01.CIR.0000091380.04100.84>
322 PM:14563598.

323 [6] A.Moya, R.Sutton, F.Ammirati, J.J.Blanc, M.Brignole, J.B.Dahm, J.C.Deharo, J.Gajek, K.Gjesdal,
324 A.Krahn, M.Massin, M.Pepi, T.Pezawas, G.R.Ruiz, F.Sarasin, A.Ungar, J.G.van Dijk, E.P.Walma,
325 W.Wieling, Guidelines for the diagnosis and management of syncope (version 2009), *Eur.Heart J.*30
326 (2009) 2631-2671
327 <https://doi.org/10.1093/eurheartj/ehp298>
328 PMID:19713422 PMCID:PMC3295536.

329 [7] L.Boodhoo, G.Bordoli, A.R.Mitchell, G.Lloyd, N.Sulke, N.Patel, The safety and effectiveness of a
330 nurse led cardioversion service under sedation, *Heart.*90 (2004) 1443-1446
331 <https://doi.org/10.1136/hrt.2004.034900>

- 332 PMID:15547025 PMCID:PMC1768581.
- 333 [8] J.Hill, Patient satisfaction in a nurse-led rheumatology clinic, *J Adv.Nurs.*25 (1997) 347-354
- 334 <https://doi.org/10.1046/j.1365-2684.1997.1997025347.x>.
- 335 [9] H.S.Koksvik, K.B.Hagen, E.Rodevand, P.Mowinckel, T.K.Kvien, H.A.Zangi, Patient satisfaction with
- 336 nursing consultations in a rheumatology outpatient clinic: a 21-month randomised controlled trial in
- 337 patients with inflammatory arthritides, *Ann.Rheum.Dis.*72 (2013) 836-843
- 338 <https://dx.doi.org/10.1136/annrheumdis-2012-202296>.
- 339 [10] C.B.Berglund, E.Gustafsson, H.Johansson, M.Bergenmar, Nurse-led outpatient clinics in oncology
- 340 care - Patient satisfaction, information and continuity of care, *Eur.J Oncol.Nurs.*19 (2015) 724-730
- 341 <https://doi.org/10.1016/j.ejon.2015.05.007>.
- 342 [11] S.Randall, T.Crawford, J.Currie, J.River, V.Betihavas, Impact of community based nurse-led
- 343 clinics on patient outcomes, patient satisfaction, patient access and cost effectiveness: A systematic
- 344 review, *Int.J Nurs.Stud.*73 (2017) 24-33
- 345 <https://doi.org/10.1016/j.ijnurstu.2017.05.008>.
- 346 [12] M.J.Smigorsky, C.M.Norris, M.S.McMurtry, R.T.Tsuyuki, Measuring the effect of nurse
- 347 practitioner (NP)-led care on health-related quality of life in adult patients with atrial fibrillation:
- 348 study protocol for a randomized controlled trial, *Trials.*18 (2017) 364
- 349 <https://doi.org/10.1186/s13063-017-2111-4>
- 350 PMID:28774317 PMCID:PMC5543536.
- 351 [13] deThurah A., B.A.Esbensen, I.K.Roelsgaard, T.F.Frandsen, J.Primdahl, Efficacy of embedded
- 352 nurse-led versus conventional physician-led follow-up in rheumatoid arthritis: a systematic review
- 353 and meta-analysis, *RMD.Open.*3 (2017) e000481
- 354 <https://doi.org/10.1136/rmdopen-2017-000481>
- 355 PMID:28879053 PMCID:PMC5574437.
- 356 [14] T.Quinn, Early experience of nurse-led elective DC cardioversion, *Nurs.Crit Care.*3 (1998) 59-62
- 357 PMID:9883163.
- 358 [15] M.P.Currie, S.P.Karwatowski, J.Perera, E.J.Langford, Introduction of nurse led DC cardioversion
- 359 service in day surgery unit: prospective audit, *BMJ.*329 (2004) 892-894
- 360 <https://doi.org/10.1136/bmj.329.7471.892>
- 361 PMID:15485966 PMCID:PMC523114.
- 362 [16] R.J.Shelton, A.Allinson, T.Johnson, C.Smales, G.C.Kaye, Four years experience of a nurse-led
- 363 elective cardioversion service within a district general hospital setting, *Europace.*8 (2006) 81-85
- 364 <https://doi.org/10.1093/europace/euj009>
- 365 PMID:16627415.
- 366 [17] L.D.Sharples, J.Edmunds, D.Bilton, W.Hollingworth, N.Caine, M.Keogan, A.Exley, A randomised
- 367 controlled crossover trial of nurse practitioner versus doctor led outpatient care in a bronchiectasis
- 368 clinic, *Thorax.*57 (2002) 661-666
- 369 <https://doi.org/10.1136/thorax.57.8.661>
- 370 PMID:12149523 PMCID:PMC1746394.
- 371 [18] G.Dunberger, K.Bergmark, Nurse-led care for the management of side effects of pelvic
- 372 radiotherapy: what does it achieve?, *Curr.Opin.Support.Palliat.Care.*6 (2012) 60-68
- 373 <https://doi.org/10.1097/SPC.0b013e32834f6a95>

374 PMID:22246041.

375 [19] S.Moore, J.Cornier, J.Haviland, M.Wells, E.Salmon, C.Normand, M.Brada, M.O'Brien, I.Smith,
376 Nurse led follow up and conventional medical follow up in management of patients with lung
377 cancer: randomised trial, BMJ.325 (2002) 1145
378 <https://doi.org/10.1136/bmj.325.7373.1145>
379 [PM:12433764](https://pubmed.ncbi.nlm.nih.gov/12433764/).

380 [20] M.Dougados, M.Soubrier, E.Perrodeau, L.Gossec, F.Fayet, M.Gilson, M.H.Cerato, S.Pouplin,
381 R.M.Flipo, L.Chabrefy, G.Mouterde, L.Euller-Ziegler, T.Schaefferbeke, B.Fautrel, A.Saraux, I.Chary-
382 Valckenaere, G.Chales, E.Dernis, P.Richette, X.Mariette, F.Berenbaum, J.Sibilia, P.Ravaud, Impact of a
383 nurse-led programme on comorbidity management and impact of a patient self-assessment of
384 disease activity on the management of rheumatoid arthritis: results of a prospective, multicentre,
385 randomised, controlled trial (COMEDRA), Ann.Rheum.Dis.74 (2015) 1725-1733
386 <https://doi.org/10.1136/annrheumdis-2013-204733>
387 PMID:24872377 PMCID:PMC4552897.

388 [21] I.Larsson, B.Fridlund, B.Arvidsson, A.Teleman, P.Svedberg, S.Bergman, A nurse-led
389 rheumatology clinic versus rheumatologist-led clinic in monitoring of patients with chronic
390 inflammatory arthritis undergoing biological therapy: a cost comparison study in a randomised
391 controlled trial, BMC.Musculoskelet.Disord.16 (2015) 354
392 <https://doi.org/10.1186/s12891-015-0817-6>.

393 [22] S.Coleman, K.Havas, S.Ersham, C.Stone, B.Taylor, A.Graham, L.Bublitz, L.Purtell, A.Bonner,
394 Patient satisfaction with nurse-led chronic kidney disease clinics: A multicentre evaluation, J Ren
395 Care.43 (2017) 11-20
396 <https://doi.org/10.1111/jorc.12189>
397 PMID:28156054.

398 [23] M.J.Carrington,P.Zimmet, Nurse health and lifestyle modification versus standard care in 40 to
399 70 year old regional adults: study protocol of the Management to Optimise Diabetes and mEtabolic
400 syndrome Risk reduction via Nurse-led intervention (MODERN) randomized controlled trial,
401 BMC.Health Serv.Res.17 (2017) 813
402 <https://doi.org/10.1186/s12913-017-2769-z>.

403
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Figure legends:

Figure 1: Processing and routing of Fast Track outpatient Rhythm and conduction disturbances.

Figure 2: Questionnaire for Fast Track outpatient Rhythm and conduction disturbances.

Figure 3: Survey. Evaluation form for Fast Track outpatient Rhythm and conduction disturbances.

Figure 4: Participants experience of Fast Track outpatient Rhythm and conduction disturbances.

Figure 1



Figure 1: Processing and routing of FT-RCD.

GP= general practitioner, NP= nurse practitioner.

424 **Figure 2: Questionnaire**

425 Please fill in this questionnaire and send us back in enclosed envelope

426 Questionnaire for the outpatients' cardiac arrhythmia * - circle the correct answer

427 Date: Name: M / F Date of birth: Age: year. Weight: kg Length:
428 cm

429 Description of complaints:

430 How often do you suffer from palpitations (number of episodes per day / week / month / year?):

431 Nature of the palpitation:

432 How long does such an episode last: (min. ----- hours ----- days -----)

433 Do you often have to urinate during or after an attack of palpitations? Yes No*

434 Are you dizzy during the complaints? Yes No*

435 Do you feel that you are about to faint? Yes No*

436 Do you experience chest pain?: yes / no *

437 Are you generally short of breath or faster tired? Yes No*

438 Do you retain fluid? Yes No*

439 Do you drink alcohol?:, ...glasses / day. Do you smoke?:, ... sig. / Day

440 Do you suffer from sleep disorders (excessive snoring or nocturnal respiratory arrest according to your partner)?: yes / no * If so, are you
441 being treated for this? -----

442 Do you sport? how many times a week: ----- What do you do for sport? -----

443 Can you cycle on an exercise bike? Yes No*

444 Is there cardiovascular disease in the family (father, mother, brothers and sisters)? Yes No*

Who?	At what age did this occur?	What?

445 Do you have diabetes? Yes / no / I do not know *

446 Do you have an elevated cholesterol level? Yes / no / I do not know *

447 Do you have elevated blood pressure? Yes / no / I do not know *

448 Social: married / widow / widower / living alone *. Children? Number.....

449 Occupation: / retired yes / no *

450 Allergy: Previous history:

Condition	Year	Treatment

451 Medication:

Drug	How many mg	How often per day

452

Figure 3: Survey Evaluation form for Fast Track outpatient Rhythm and conduction disturbances (FT-RCD)

Dear participant

You recently visited our ZGT Fast Track outpatient clinic Rhythm Disorders. We attach great importance to your opinion about the care provided to you, so we ask you to fill in this evaluation form. Among other things, we want to continue to improve the care provided to our patients. Circle the answer for each question that is the best according to your experience. You can also add some comments at the bottom of this form. Send the completed form in the attached reply envelope to ZGT. A stamp is not required.

Thank you for your time and cooperation

Circle your choice:

1. I found the information provided in advance before the visit:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

2. The time between registration by a GP / specialist and my admission to the FTP-RS amounted to: (complete) _____ weeks.

3. The length of this waiting time, I found it:

Too long	Too short	Neutral
----------	-----------	---------

4. The time and the reception on the FT-RCD was in my experience:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

5. I found the accommodation of the FT RCD:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

6. The extent to which my privacy was taken into account, I experienced as:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

7. The interview and the way in which the physical examination was carried out, I experienced as:

8.

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

9. Undergoing the echocardiographic examination, I experienced as:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

10. I experienced the bicycle exercise testing as:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

11. The way in which the cardiologist informed me about my results, is:

Excellent	Good	Sufficient	Moderate	Bad
-----------	------	------------	----------	-----

12. I went home with a reassured feeling:

Yes	No	Neutral
-----	----	---------

13. I experienced the total duration of my visit to the Fast Track outpatient clinic:

Too long	Too short	Neutral
----------	-----------	---------

14. I would rate my visit to the Fast Track outpatient clinic with the following score (1 is the worst assessment, 10 is the best rating):

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Comments or suggestions

Please fill in any comments or suggestions below to improve our care:

Contact

May we possibly contact you on the basis of this evaluation form you have completed? If you want to offer us this option, enter your name and date of birth below. Of course you are not obliged to do this.

Name: date of birth:

Help others with your choice!

To support other people in making their choice for a doctor, you can enter an assessment on Zorgkaart Nederland.

It goes like this:

1. Go to www.zorgkaartnederland.nl

2. Enter the name of your doctor and his / her specialty in the search bar

3. Select your doctor from the list

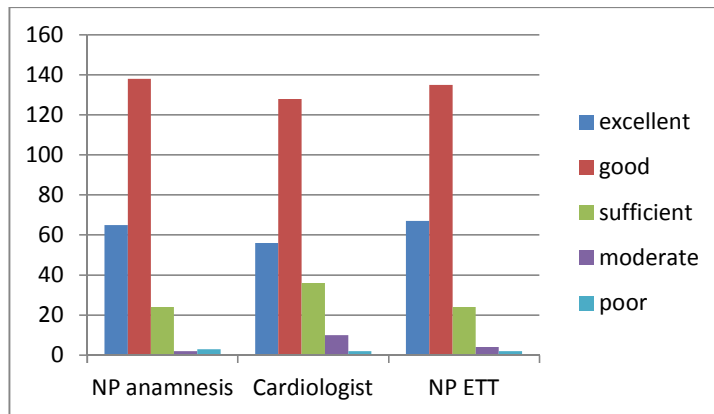
4. Click on the "Value" butts

Furthermore, it goes easily.

We thank you for the effort to take.

507

508



509

510 **Figure 4:** Participants experience of FT-RCD.

511 NP= nurse practitioner, ETT= exercise tolerance testing.