Definition

Integrated **care**, also known as integrated health, coordinated **care**, comprehensive **care**, seamless **care**, or transmural **care**, is a worldwide trend in health **care** reforms and new organizational arrangements focusing on more coordinated and integrated forms of **care** provision. Integrated care may be seen as a response to the fragmented delivery of health and social services being an acknowledged problem in many health systems.

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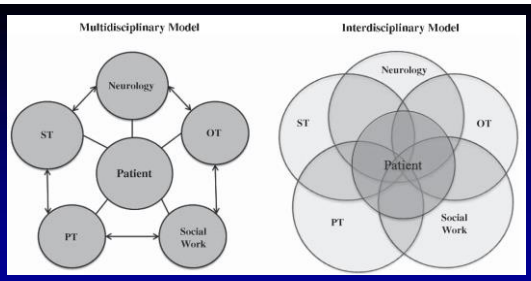
3. Kai Leichsenring (2004). "Developing integrated health and social care services for older persons in Europe". International Journal of Integrated Care. 4: e10. PMC 1393267 Freely accessible. PMID 16771146



«Multidisciplinary», «interdisciplinary», and «integrative» are often used interchangeably

The integrative care of Parkinson's disease: a systematic review.
Lindsay Penny Poole, Nick Mitchell, Brownie
Published: 2012 in Journal of Parkinson's disease
DOI:10.3233/JPD-2012-12075

Central Concepts of Integrative Care

1. The continuum of autonomy to (low level) cooperation to integration
2. Vertical integration and horizontal integration
3. Collaborative care
   1. Integration of mental health professionals in primary care medical settings
   2. Close collaboration between social, mental health, and medical/nursing providers
   3. Focus on treating the whole person and whole family
4. Integrated care in the context of population health outcomes, quota based (fee for quality versus fee for service) models, accountable health organizations

Reference:
Butler M, Kane RL, McAlpine D, Kathol, RG, Fu SS, Hagedorn H, Wilt TJ. Integration of Mental Health/Substance Abuse and Primary Care No. 173 (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0009.) AHRQ Publication No. 09-E003. Rockville, MD. Agency for Healthcare Research and Quality. October 2008.

Implementation of an Integrative Holistic Healthcare Model for People Living with Parkinson's Disease
Ingrid Pretzer-Aboff, PhD Allen Prettyman, PhD
The Gerontologist, Volume 55, Issue Suppl_1, 1 June 2015, Pages S146–S153,https://doi.org/10.1093/geront/gnv004
Published: 16 May 2015

Table 1
Intervention studies evaluating the effectiveness of multidisciplinary care for individuals with Parkinson's disease

Author	Methodology	Study Design: Intervention	Study Design: Team Effectiveness Variables	Follow-Up Duration	Results
Guo et al. (2009)	Single-blind, randomized trial, with a pre-test/post-test quasi-experimental design, measuring the short term effects of multidisciplinary team treatment for 44 non-demented Parkinson's patients	The intervention group received three group lectures on Parkinson's health education, covering the topics: nutrition, movement, and mood. Relevant information was posted to a website. Participants then received individualized physical and occupational therapy comprised of 24 half-hour sessions over eight weeks	-Hoehn and Yahr stages -HR-QOL -UPDRS -Schwab and England Activities of Daily Living (SEADL) -Zung Self-Rating Depression Scale (SDS) -Global patient's mood status (PMS) -Caregiver's mood status (CMS)	Assessments at time zero, after four weeks of intervention, and the end of the eight-week intervention	On the HR-QOL, the intervention group showed a 37% improvement on PDQ-39 scores. On the UPDRS, the intervention group improved in ADLs and movement. Intervention participant scores showed significant improvement on the global patient's mood status measure.
Trend et al. (2002)	Exploratory, one group, pretest/posttest design. 118 patients participated in 24 groups of six with their carers. Studied the short term effects of team treatment	Six, 5.5 hour session multidisciplinary (nurse, physical therapist, occupational therapist, and a speech therapist) treatment program involving both individual and group treatment for patients as well as their carers	-Hoehn and Yahr stages -Barthel ADL Index -Hospital Anxiety and Depression Scale (HADs) -Euroqol-5d -Emerson and Enderby measures of voice and articulation -Timed walk	Assessments at time zero and at the sixth week	Participants showed significant improvements in health-related quality of life, depression, mobility and gait, voice articulation and speech

Table 1 Intervention studies evaluating the effectiveness of multidisciplinary care for individuals with Parkinson's disease

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Lindsay Penny Prizer, Nina Mikelashvili Browner
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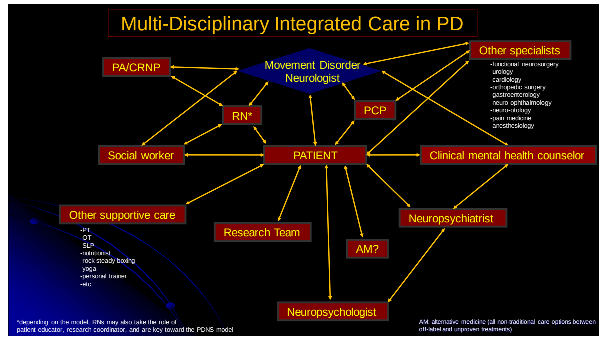

The Importance of Multi-D Care in Advanced Therapies

J Multidiscip Healthc. 2017 Jan 4;10:13-27. doi: 10.2147/JMDH.S111369. eCollection 2017.

The role and structure of the multidisciplinary team in the management of advanced Parkinson's disease with a focus on the use of levodopa-carbidopa intestinal gel.

⊕ Author information

Abstract
A multidisciplinary team (MDT) approach is increasingly recommended in Parkinson's disease (PD) treatment guidelines, but no standard of care exists for such an approach, and the guidelines do not provide clarification on how it should be implemented. This paper reviews evidence of MDT interventions in people with PD and provides expert clinical perspectives for an MDT approach, with a focus on advanced PD and levodopa-carbidopa intestinal gel (carbidopa-levodopa enteral suspension in the USA). The key recommendations are to enable the best possible treatment of people with PD locally by facilitating a close structured collaboration of different health care professionals working in a fixed network structure; to refer people with PD to established MDT centers in a timely manner; to establish regular meetings for the MDT enabling interdisciplinary exchange and learning; to optimize individual treatment and carefully evaluate available treatment options; to ensure treatment decisions are agreed jointly between people with PD, their caregivers, family, and health care professional; and to include specialists outside of neurology from adjuvant medical departments as necessary when implementing advanced therapies.

KEYWORDS: Parkinson's disease; advanced therapy; carbidopa-levodopa enteral suspension; levodopa-carbidopa intestinal gel; multidisciplinary team

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Developing the PD Nurse Specialist Model

J Parkinsons Dis. 2017;7(4):749-754. doi: 10.3233/JPD-171195.

A Guideline for Parkinson's Disease Nurse Specialists, with Recommendations for Clinical Practice.

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⊕ Author information

Abstract
BACKGROUND: Parkinson's Disease Nurse Specialists (PDNS) play an important role in the care for patients with Parkinson's disease (PD) and their caregivers. Until now, there were no nursing guidelines in PD, and interventions were based solely on daily clinical practice because there is no evidence to support the merits of nursing interventions. Consequently, there is little uniformity in current care delivery.
OBJECTIVE: Developing a guideline for PDNS.
METHODS: We developed a guideline based on a questionnaire among PDNS and a literature review, supplemented with expert opinion plus the input of patients and caregivers. The questionnaire was filled in by 97 PDNS and 51 generic nurses with knowledge of PD to identify barriers in PD nursing care. Subsequently, we did a systematic literature search and transformed these sources of information into practice recommendations, which were developed according to international standards for guideline development.
RESULTS: Based on the results of the questionnaire we identified seven specific core areas: defining the role of PDNS in terms of caseload, education, competences and care coordination; medication adherence; provision of information and education; coping; caregiver support; urogenital function and orthostatic hypotension. The systematic literature search identified 186 studies, of which 33 studies were finally analyzed. Furthermore, we developed practice recommendations based on good clinical practice for the following areas: self-care, mental functioning, mobility, nutrition, sexuality, work, sleep, palliative care and complementary (integrative) care.
CONCLUSION: This guideline provide ground to harmonize care delivery by PDNS in clinical practice, and offer a foundation for future research.

PDNS Essential for Advanced Therapies in PD

Parkinsonism Relat Disord. 2016 Dec;33 Suppl 1:S49-S55. doi: 10.1016/j.parkreldis.2016.11.014. Epub 2016 Dec 9.

Understanding the role of the Parkinson's disease nurse specialist in the delivery of apomorphine therpy.

Bhidayasiri R[1], Boonpang K[2], Jitkritsadakul O[2], Calne SM[3], Henriksen T[4], Trump S[5], Chaiwong S[2], Susang P[2], Boonrod N[2], Sringean J[2], van Laar T[6], Drent M[6], Chaudhuri KR[8]

⊕ Author information

Abstract
Optimal care of Parkinson's disease (PD) patients should involve a multidisciplinary team (MDT) of which a PD nurse specialist (PDNS) is a key member. The role of a PDNS is particularly prominent in the care of advanced PD patients suitable for apomorphine because, in addition to nursing skills, apomorphine treatment requires liaison, training, interaction and coordination with patients, caregivers and other members of the MDT as well as the interface with primary care physicians. The therapeutic success of apomorphine therapy depends not only upon the pharmacologic drug response, but also on how well the patient understands his/her disease and how to handle the therapy. In this respect, a PDNS is a vital member of the MDT who provides education and training, support, and is available for consultation when problems arise. In this article, we review the literature on the contribution of PDNSs in both continuous subcutaneous apomorphine infusion and intermittent subcutaneous apomorphine injection and highlight the various beneficial aspects of PDNS care, supported by scientific evidence when available. Despite a low level of published evidence, there is strong clinical evidence that the impact of PDNSs on the management of apomorphine therapy is vital and indispensable for the success of this treatment.

KEYWORDS: Apomorphine; Multidisciplinary team; Parkinson's disease; Parkinson's disease specialist nurse
PMID: 27939324 DOI: 10.1016/j.parkreldis.2016.11.014

Implementing Multidisciplinary Guidelines in PD

- Reorganization of the care process/developing clinical pathways
- Development of instruction materials
- Multidisciplinary meetings
- Educational meetings
- Quality control meetings/circles – feedback mechanisms as part of the implementation process
- Transparency – specific measures and policies for appropriate implementation – scheduled checks on adherence

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van Dijk MK, Verbraak MJ, Oosterbaan DB, van Balkom AJ. Implementing practice guidelines for anxiety disorders in secondary mental health care: a case study. Int J Ment Health Syst. 2012 Sep 20;6(1):20. doi: 10.1186/1752-4458-6-20. PMID: 22995737
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Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. The Lancet. 2003;362:1225–1230. doi: 10.1016/S0140-6736(03)14546-1.

The challenge of implementing integrated care guidelines

Table 2

Guideline adherence in the pre- and post-implementation group

Guideline recommendation	Pre-implementation group (n = 130)		Post-implementation group (n = 181)		Difference	p
Number of patients indicated for cognitive interventions and the percentage that actually received it: n (%)	124	(15.3)	109	(60.7)	+54.4	<0.01
Number of patients indicated for exposure interventions and the percentage that actually received it: n (%)	81	(17.3)	10	(80.0)	+62.7	<0.01
Number of patients indicated for treatment with EMDR and the percentage that actually received it: n (%)	23	(43.5)	30	(66.7)	+43.2	<0.01
Number of patients indicated for medication step 1 and the percentage that actually received it: n (%)	54	(55.6)	59	(81.0)	+5.4	0.58
Number of patients indicated for medication step 2 and the percentage that actually received it: n (%)	15	(20.0)	20	(45.0)	+25.0	0.12
Number of patients indicated for medication step 3 and the percentage that actually received it: n (%)	11	(45.5)	12	(58.7)	+28.8	0.19

References:
van Dijk MK, Verbraak MJ, Oosterbaan DB, van Balkom AJ. Implementing practice guidelines for anxiety disorders: a secondary mixed-health care. J Nerv Ment Dis. 2012 Aug 21;8(2):21. doi: 10.1186/1752-4458-8-20. PMID: 22899737
Grol R, Wensing M, Eccles M. Improving patient care: The implementation of change in clinical practice. Grol R, Wensing M, Eccles M, editor. Edinburgh: Elsevier Butterworth-Heinemann; 2005. Effective implementation: a model; pp. 41-57.

Challenges to Study Integrated Care in PD

- "Too difficult" to measure – complexity of anxiety/lack of specific and pure outcomes/biomarkers
- Multidisciplinary care often against deeply ingrained habits based on fragmented care – the resistance to change – provider/investigator unfamiliarity (compared to testing a simple experimental intervention/study drug)
- The limited supply of similarly trained, certified, credentialed experienced members of multidisciplinary teams – a challenge to reproducibility/ability to extrapolate findings
- Lack of universally agreed definitions about what constitutes "integrated" care and how to categorize, quantify, grade different versions of it

Conclusions

1. Integrated care is critical to a complex and multifaceted disease like PD
2. Challenges to implement integrated care include:
   1. General provider resistance to change of historically autonomous care
   2. Lack of awareness and patient preferences/factors
   3. Health economic reasons (overall simplicity and dominance of "fee for service" models)
3. While some evidence suggests benefit, future prospective studies specifically on integrated care in PD are needed to confirm its superiority over fragmented and autonomous care (including health economic and population level outcomes)
4. This will only be possible if some basic parameters and definitions are developed to better define what integrated/multidisciplinary care consists of in a way that is universally applicable, agreed upon, and reproducible

References:
1. Butler M, Kane RL, McAlpine D, Kathol, RG, Fu SS, Hagedorn H, Wilt TJ. Integration of Mental Health/Substance Abuse and Primary Care No. 173 (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0025.) AHRQ Publication No. 09-E003. Rockville, MD. Agency for Healthcare Research and Quality. October 2008.
2. Shepardson RL, Funderburk JS. Likelihood of Attending Treatment for Anxiety Among Veteran Primary Care Patients: Patient Preferences for Treatment Attributes. J Clin Psychol Med Settings. 2016 Sep;23(3):225-39. doi: 10.1007/s10880-016-9462-y. PMID: 27455841