



Health Care Provision in a Swiss Urban Walk-In-Clinic. Is Advanced Nursing Practice a Solution for a New Model in Primary Care?

Gesundheitsversorgung in einer städtischen Walk-In-Praxis in der Schweiz. Ist Advanced Nursing Practice ein neues Modell in der Grundversorgung?

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Abstract

Background: Changing demographic and economic factors are producing serious challenges to Switzerland's primary care providers: meeting the population's growing needs will require redevelopment and reorganization. Large-scale community-based care can be expanded via alternative care models, including walk-in-clinics (WIC) staffed by interdisciplinary teams, with Advanced Practice Nurses (APNs) playing key roles in the treatment of minor complaints.

Aims: To reveal the proportion of adult patients within five exemplary diagnostic groups (respiratory tract infections, earaches, hearing impairments, urinary tract infections and wounds) who could be treated by APNs in a Swiss urban WIC in order to develop a future model of multidisciplinary collaboration between APN and physicians.

Methods: A retrospective data analysis was performed on WIC's medical records. Reflecting seasonal variations, a one-month patient data sample was collected for each of four consecutive seasons (July and October 2010, January and April 2011). Data analyses included calculations of frequencies of individual diagnoses and of diagnostic groups.

Results: Of a combined sample of 5,130 patient consultations, 53% (n=2,733) fit within the scope of APN competencies. The most common diagnoses concerned minor wounds (24%; n=1,240) and upper respiratory tract infections (18%; n=926).

Conclusion: Based on this study's results, we conclude that assigning APNs to primary care clinics would contribute a meaningful new professional role to Switzerland's healthcare system. Further research will be necessary to evaluate the effects of such implementation on inter-professional collaboration and patient outcomes.

Abstract

Hintergrund: Durch demographische und wirtschaftliche Faktoren sowie durch die Entwicklung der medizinischen Versorgung verändern sich die Ansprüche an das Gesundheitswesen. Ausbau und Umstrukturierung der Primärversorgung werden zwingend notwendig, um der veränderten Nachfrage gerecht zu werden. Insbesondere die gemeindenähe Versorgung für eine breite Bevölkerungsschicht kann mit alternativen Versorgungsmodellen ausgebaut werden. Ein entsprechendes Modell sind Walk-In-Praxen (WIP) mit interdisziplinären Versorgungsteams. In diesen nehmen Advanced Practice Nurses (APN) bei der Patientenversorgung eine zentrale Funktion ein.

Zielsetzung: Das Ziel der vorliegenden Studie war, den Anteil erwachsener Patienten zu erheben, die anhand fünf exemplarisch gewählten Diagnosegruppen (Atemwegsinfektionen, Ohrschmerzen, Hörminderungen, Harnwegsinfektionen und Wunden) in einer städtischen WIP in der Schweiz durch APNs versorgt werden könnten, um darauf künftig eine multidisziplinäre Zusammenarbeit von APNs und Ärzten aufbauen zu können.

Methoden: Eine sekundäre, deskriptive Datenanalyse bestehender Krankengeschichten einer städtischen WIP wurde durchgeführt.

Ergebnisse: Erfasst wurden alle Konsultationen von vier untersuchten Monaten (N = 12'496), wovon 5'130 Konsultationen in die Analyse eingeschlossen werden konnten. Davon lagen 53% (n = 2'733) im Kompetenzbereich der APNs. Den grössten Anteil bildeten die Konsultationen wegen unkomplizierten Wunden (24%; n = 1'240) sowie wegen oberen Atemwegsinfektionen (18%; n = 926). Auf der Basis der Hauptergebnisse wurden 166 Stellenprozente für den Einsatz von APNs errechnet.

Schlussfolgerungen: Aufgrund der Ergebnisse dieser Studie kann davon ausgegangen werden, dass APNs in diesem Versorgungsbereich auch in der Schweiz eine wichtige Rolle einnehmen können. Weiterführende Forschung wird nötig sein, um den Effekt auf die interdisziplinäre Zusammenarbeit und Patientenergebnisse zu erheben.

Keywords

Advanced Practice Nursing – Primary Care – Health Care Provision – Walk-In-Clinic

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Advanced Practice Nursing – Primärversorgung – Gesundheitsversorgung – Walk-In-Praxis



INTRODUCTION

Switzerland's current demographic and economic shifts decisively challenge its health care system (World Health Organisation, 2008), which must orient itself to the increasingly individualised and specialised care needs of a highly mobile ageing population (Spycher, Jaccard Ruedin, Wiedenmayer, & Junker, 2009; World Health Organisation, 2008). Due largely to the emergent lack of primary care physicians (Delamaire & Lafortune, 2010; Hänggeli, Lang, Kraft, & Bradke, 2010; Spycher et al., 2009), these demands will soon outstrip the capacity of general medical practices to provide conventional primary care. In Switzerland and internationally, a direct and uncomplicated approach is postulated for qualitatively advanced health care across a broad social stratum (Delamaire & Lafortune, 2010; Hänggeli et al., 2010; Künzi & Detzel, 2007). In order to improve on the efficiency of the classical basic care model, various alternative care models have been proposed. Among the most promising of these is the deployment of multi-disciplinary care teams to diagnose and treat complex health problems in primary care settings (Delamaire & Lafortune, 2010). Therefore, skill mix adjustments in such teams should be tested alongside targeted deployment of diverse occupational groups to match their competencies to patient needs (Lindpaintner, 2010). One proposed option is the use of advanced practice nurses (APNs) for appropriate cases (De Geest et al., 2008; Hamric, Spross, & Hanson, 2009; Laurant et al., 2005).

DEFINITION AND FUNCTION OF ADVANCED PRACTICE NURSES

The International Council of Nurses defines APNs as certified nursing experts with expert knowledge and decision-making skills appropriate to complex situations as well as clinical competencies suitable for expanded care practice (Schober & Affara, 2006). APNs require an academic diploma, followed by extensive experience in advanced and emerging fields of patient care (Schober & Affara, 2006). APNs typically specialise in one care division (e.g., emergency medicine) or in one patient group (such as diabetics) (Hamric et al., 2009).

APNs' functions reflect their collaboration with other medical services (Delamaire & Lafortune, 2010). In this context, Klein (2007) describes three models of career pursuit for APNs: independent, collaborative and delegative/supervisory models. Between the delegative and completely independent models, physicians and APNs work collaboratively to treat a collective patient group (Klein, 2007). Depending on the complexity of the patient's problem and the capacity of the medical professionals, patients are treated either by a physician or

an APN (Liu & D'Aunno, 2012). If necessary, the APN will request supervision from the physician. Liu and D'Aunno (2012) describe this model as the most effective and most economical for care in a walk-in clinic (WIC).

WALK-IN CLINICS AND MINOR HEALTH PROBLEMS

WICs offer episodic basic care without appointments for a limited set of common problems (College of Physicians & Surgeons of Nova Scotia, 2010). In general practices and WICs in Scandinavia, the Netherlands and Canada, APNs are responsible for the so-called 'Minor Health Problems' (de Guzman, Ciliska, & DiCenso, 2010; Dierick-van Daele et al., 2010; Lindblad, Hallman, Gillsjo, Lindblad, & Fagerstrom, 2010). In the context of a WIC, these include minor injuries and illnesses of the ear, nose and throat, urinary tract or musculoskeletal system, as well as gynaecological, dermatology and age-related health problems (de Guzman et al., 2010; Dierick-van Daele et al., 2010; Lindblad et al., 2010). These are also frequent reasons for consultation in Swiss primary care (Künzi & Detzel, 2007), but no publically accessible data are currently available on their incidence and prevalence. In the Scandinavian countries, in 2001, 10–30% of the population received outpatient care for upper respiratory tract infections (Andre et al., 2002). In the USA, 8.6% of general practitioner consultations were for respiratory tract infections (Hing, Cherry, & Woodwell, 2006). Up to 4% of all general practitioner visits in Germany occurred due to earaches (Deutsche Gesellschaft für Allgemeinmedizin und Familienmedizin, 2005); in Sweden, the figure was 17% (Andre et al., 2002). The incidence of adult women in the USA who suffered from urinary tract infections was over 12% (Foxman, 2010). In WICs in the Netherlands, nearly 20% of all treatments were performed due to wounds (van der Linden, Reijnen, & de Vos, 2010). In Sweden, this amount was 20–50% of all consultations in multi-disciplinary WICs (Friman, Klang, & Ebbeskog, 2010).

Evaluations of APN models in primary care show that APNs improve access to services and shorten waiting times without affecting the quality of care (Delamaire & Lafortune, 2010). In primary care, analysis of patient results regarding health status, disease-specific bio-medical measurements and the utilisation of emergency and hospital care showed no significant differences between medical care by physicians and that provided by APNs (Laurant et al., 2005; Naylor & Kurtzman, 2010; Newhouse et al., 2011). Compared to mono-disciplinary general or nurse-led practices, the effectiveness of WIC models employing multi-disciplinary collaboration has been proven regarding both health outcomes and economic benefits (Dierick-van Daele et al., 2010; Liu & D'Aunno, 2012).



Swiss development and the use of advanced nursing practice is still in its early stages (Künzi & Detzel, 2007). Since the founding of the University of Basel's Institute for Nursing Science in 2000, APNs have been educated at a master's level (Künzi & Detzel, 2007; Sheer & Wong, 2008). Throughout Switzerland, the programme's graduates are increasingly deployed in various areas of primary care (Lindpaintner, 2010), acute care (Künzi & Detzel, 2007; Ulrich, Hellstern, Kressig, Eze, & Spirig, 2010) and long-term care (Müller, Jaggi, Kouriaichi, Eggenschwiler, & Mahrer-Imhof, 2010; Zùñiga, Jenni, Wiesli, & Schwendimann, 2010).

The inclusion of APNs in Swiss primary care aims to alleviate care access and distribution problems, particularly in local health care settings (Künzi & Detzel, 2007) such as WICs. APNs are already sporadically active in low-threshold first contact and primary care clinics. However, the data set for APNs in Switzerland remains weak. To date, no known study has analysed WIC patient data to measure the potential for APN deployment. Thus, the present study had the goal of determining the number and proportion of adult patients in a municipal WIC who could be treated by an APN for Minor Health Problems.

AIM OF THE STUDY

The aim of the study was to reveal the proportion of adult patients within five exemplary determined diagnostic groups (respiratory tract infections, earaches, hearing impairments, urinary tract infections and wounds) who could be treated by APNs in a Swiss urban WIC. As the APN role is not common in the Swiss health care setting, this study aimed at contributing to the development of a multi-disciplinary approach by considering an APN as an important stakeholder to overcome present challenges in primary care provision.

METHOD

Study design

This is a retrospective data analysis. The data on patients and consultations were collected from medical histories supplied by the WICs examined. Data collected were based on diagnosis-related APN competencies, which are integrated into Klein's model of supervised cooperation (Klein, 2007). The calculation of APN fulltime or equivalent positions was based on skill and grade mix calculations according to Buchan and O'May (Buchan & O'May, 2000).

Data Analysis

The data were analysed using Microsoft Excel 2008 for Mac version 12.3.0 software. Descriptive statistical

procedures were used (absolute and relative frequencies). This allowed quantitative statements, particularly regarding the degree to which an APN could be involved in the care. In addition, it was possible to compare the frequencies of the variables examined as well as the time periods (Polit & Beck, 2008).

The calculation of the optimum number of APN fulltime or equivalent positions for the WIC examined was based on the tasks performed (skill and grade mix calculation) (Buchan & O'May, 2000; Theofanidis & Dikatanidou, 2006). The TARMED (standardised Swiss medical fee system) calculations regarding the consultations examined were used for this purpose, with the average indicated duration used as the range.

Ethical Aspects

Pursuant to a memorandum from the competent ethics committee, no ethical approval was necessary for the study (Bern Cantonal Ethics Committee, May 17, 2011). All data were anonymised, leaving no conclusions possible regarding individual patients or medical histories.

SELECTION OF OBSERVATION

Setting

The examined WIC had a catchment area corresponding roughly to the greater Berne urban area, and provided about 3,000 consultations per month. Some patients were visiting from elsewhere in Switzerland or from abroad. The clinic's services were primarily targeted towards adults, but children were also treated. Consultations were provided on a daily basis from 7:00 a.m. to 10:00 p.m. by a team of physicians and medical practice assistants. This study's data were collected from medical histories recorded in July 2010, October 2010, January 2011 and April 2011. The timing of these collection periods enabled the consideration of seasonal deviations in diagnoses without neglecting their topicality.

Primarily, all consultations in the areas of earache, hearing loss, respiratory tract infections, urinary tract infections or wounds were included. The inclusion criteria for the scope of the APNs' competence were as follows: age (minimum 16 years), treatment of only one of the included diagnoses in uncomplicated expression (see table 1) and follow-up of wounds. All patients under the age of 16 and those with multiple diagnoses and/or diagnoses including complications were excluded, as were all follow-up consultations not dealing solely with wounds.

Data Collection and Measurement Variable

The data collection procedure is shown in figure 1. Consultations based on the included diagnoses and within



Table 1. Inclusion and exclusion criteria of the examined diagnoses within the scope of treatment competency of the APN

Diagnosis	Inclusion criteria	Exclusion criteria
Respiratory Tract Infection	- Acute illness - Rhino pharyngitis - Sinusitis - Pharyngitis - Tonsillitis - Flu	- Chronic Disease (>2 months) - Lower respiratory tract infections including bronchitis - Suspicion of Epstein–Barr virus - Follow-up and recurrences
Earache	- Unilateral or bilateral non-ulcerous otitis media	- Ulcerous otitis media - Otitis interna - Otitis externa - Runny ear - Tympanic perforation - Hearing loss - Follow-up and recurrences
Hearing loss	- Hearing loss due to cerumen	- Hearing loss due to cause other than cerumen - Follow-up and recurrences
Urinary Tract Infection (UTI)	- Pre- or post-menopausal - Uristix and Sediment: - Nitrite positive - Nitrite positive and leukocyte positive - Leukocyte positive and haemoglobin positive - Nitrite negative and leukocyte negative	- Male - Chronic UTI (>2 UTI/six months or >3 UTI/year) - Recurring UTI (UTI in the last two weeks) - Fever (ear temperature >38°C) - Costovertebral Angle Tenderness - Changed or new onset vaginal discharge - Haematuria without other symptoms - Follow-up and recurrences
Wounds	- Abrasions - Bruising and Lacerations - Lacerations that can be glued - 1st and 2nd degree burns up to 2% of the body surface - Decubitus 1–3 degrees - Ulcus cruris up to and with cutis - Haematoma - Follow-up of surgical wounds - Wound follow-up - Other complicated wounds (abscesses, whitlows, etc.)	- Wounds requiring stitches - Wounds that require incisions or local anaesthesia - Burns from 3rd degree or over 2% of the body surface - Joint burns - Genital burns - Electrocution burns. - 4th degree decubitus - Ulcus cruris deeper than cutis - Bites - Wounds with contamination of infectious diseases in the foreground - Infected insect stings - Erysipelas - Skin appendage wounds - Mucous membrane wounds
Multiple Diagnoses	- Otitis media due to cold - Tubal ventilation disorder	- All other multiple diagnoses

the scope of APN treatment were examined in more detail. Patients' demographic data, medical data and consultation data were recorded for eligible cases.

Based on data from 40 consultations per diagnosis, the durations of individual consultations were estimated based on TARMED calculations. Other time data was unavailable via the WIC medical records. As a fee calculation system for outpatient medical consultations, TARMED provides information on services and time expended (TARMED, 2011).

The data were entered directly into a template in Microsoft® Excel® 2008 for Mac Version 12.3.0. To ensure data quality, every fifth medical record (n = 2,499; 20%) was opened a second time and checked for correctness by two research assistants who had neither collected nor entered the data. The error quota was 1.2% of the data reviewed. All data were collected and coded

using a codebook by the primary investigator and three student research assistants.

RESULTS

Number of consultations in general and number of consultations within the scope of APN competency

In the months studied, the examined WIC had a cumulative total of 12,496 consultations. Of these, 5,130 (41.1%) were eligible for analysis, as the resulting diagnoses fell within the range of 'Minor Health Problems'; and of those eligible, 2,733 fell within the scope of APN competency (see figure 1). This represents 21.9% of the total consultations examined or 53.3% of the consultations included. The share of consultations included within

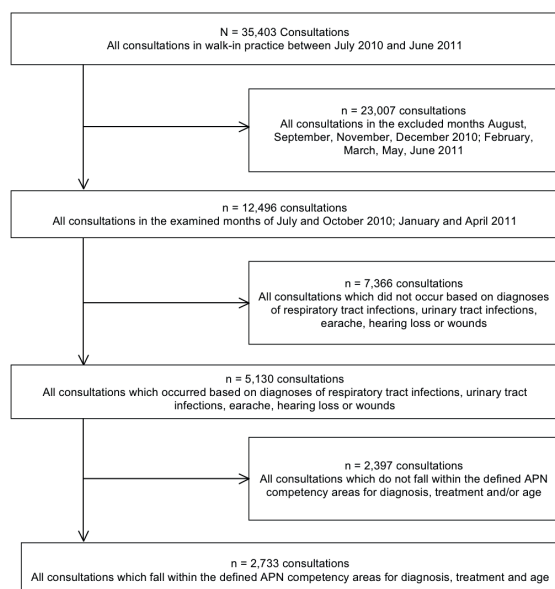


Fig 1. Flow chart of data collection

Table 2. Socio-demographic data of patients per consultation

		All included consultations N = 5,130		All consultations within the scope of APN competency N = 2,733		All consultations outside the scope of APN competency N = 2,379	
Age Group	0–15 years	290	(5.7%)	excluded age groups		290	(12.1%)
	16–19 years	333	(6.5%)	188	(6.9%)	145	(6.0%)
	20–39 years	2,676	(52.2%)	1,552	(56.8%)	1,124	(46.9%)
	40–59 years	1,312	(25.6%)	722	(26.4%)	590	(24.6%)
	60–79 years	411	(8.0%)	206	(7.5%)	205	(8.6%)
	≥80 years	108	(2.1%)	65	(2.4%)	43	(1.8%)
Gender	Female	2,842	(55.4%)	1,527	(55.9%)	1,315	(54.9%)
	Male	2,288	(44.6%)	1,206	(44.1%)	1,082	(45.1%)
Residence	City of Bern	2,467	(48.1%)	1,321	(48.3%)	1,146	(47.8%)
	Canton of Bern	2,176	(42.4%)	1,150	(42.1%)	1,026	(42.8%)
	Switzerland, other	404	(7.9%)	222	(8.1%)	182	(7.6%)
	Abroad	79	(1.5%)	38	(1.4%)	41	(1.7%)
	Missing, incomplete documentation	4	(0.1%)	2	(0.1%)	2	(0.1%)
Occupational situation	Pre-school, school education, vocational education,	940	(18.3%)	366	(13.4%)	574	(23.9%)
	employed	3,212	(62.6%)	1,843	(67.5%)	1,369	(57.1%)
	unemployed, retired	744	(14.5%)	418	(15.3%)	326	(13.6%)
	Missing, incomplete documentation	234	(4.6%)	106	(3.9%)	128	(5.3%)
Health Insurance	No	52	(1.0%)	27	(0.1%)	25	(1.0%)
	Yes	4,902	(95.6%)	2,623	(96.0%)	2,279	(95.1%)
	Missing, incomplete documentation	176	(3.5%)	83	(3.0%)	93	(3.9%)
General Practitioner	No	813	(15.9%)	466	(17.1%)	347	(14.5%)
	Yes	3,729	(72.7%)	1,941	(71.0%)	1,788	(74.6%)
	Missing, incomplete documentation	588	(11.5%)	326	(11.9%)	262	(10.9%)

the scope of APN competency are n = 1,240 (9.9%) for wounds, n = 926 (7.1%) for respiratory tract infections, n = 293 (2.3%) for urinary tract infections, n = 135 (1.1%) for earache and n = 139 (1.1%) for hearing loss. Those that fell outside the range of APN competency are n = 815 (6.5%) for wounds, n = 966 (7.7%) for respiratory tract infections, n = 359 (2.9%) for urinary tract infections, n = 261 (2.1%) for earache and n = 65 (0.5%) for hearing loss.

Demographic Data

The demographic data for patients in all included consultations (n = 5,130) as well as for those within the scope of APN competency (n=2,733) and those outside the range of competency of the APN (n = 2,379) are shown in table 2.



Characteristics of the Consultations

Table 3 represents the number of consultations both within and outside the scope of APN competency per month studied as well as cumulative totals for the four months studied. At 24.2%, superficial wounds represent the greatest share of diagnoses within the scope of APN competency. The smallest share (2.6%) involved uncomplicated earaches, closely followed by cerumen-related hearing loss (2.7%).

Slight seasonal deviations were apparent regarding wounds (The difference from January to July is $n = -161$; -3.1%) and respiratory tract infections (The difference from January to July is: $n = 152$; 3.6%). These differences have no influence on the overall proportion of the individual months' consultations within the scope of APN competency.

Across the five diagnoses included within the scope of APN competency, 137 consultations (5.0%) involved one or more ancillary diagnoses, which could have had treatment relevance for the applicable main diagnosis (anatomical anomalies, pregnancy or lactation, diabetes

mellitus type 1 or type 2, venous insufficiency, periphery arterial occlusion disease, urological interventions, immune deficiency or sexually transmitted diseases). Due to deficiencies in the documentation, no or not all ancillary diagnoses could be compiled for 796 consultations (23.7%). Every medical history and findings report that was not completely documented was classed as 'Missing, incompletely documented'. Allergies relevant to treatment were found in 212 consultations (7.8%). In 22 cases (0.8%), the patient visited the WIC for a reason not directly related to the resulting diagnosis, which fell within the specified scope of APN competency.

Calculation of APN Fulltime or Equivalent Positions

The total compiled consultations resulting in the selected five diagnoses and within the scope of APN competency was 8,199 for one calendar year (365 days, of which 220 were workdays, i.e., an average of 22.5 consultations per day). Based on figures extrapolated from the TARMED calculations, the average consultation duration was

Table 3. Frequencies of consultation due to the included diagnoses with the applicable proportions per month

	January		April		July		October		Total	
Earache										
None	1,228	(23.94%)	1,172	(22.85%)	1,191	(23.22%)	1,143	(22.28%)	4,734	(92.28%)
Complicated	66	(1.29%)	44	(0.86%)	102	(1.99%)	49	(0.96%)	261	(5.09%)
Uncomplicated	47	(0.92%)	38	(0.74%)	36	(0.70%)	14	(0.27%)	135	(2.63%)
Hearing loss										
None	1,294	(25.22%)	1,221	(23.80%)	1,237	(24.11%)	1,174	(22.88%)	4,926	(96.02%)
Complicated	13	(0.25%)	13	(0.25%)	31	(0.60%)	8	(0.16%)	65	(1.27%)
Cerumen-related	34	(0.66%)	20	(0.39%)	61	(1.19%)	24	(0.47%)	139	(2.71%)
Urinary Tract Infection										
None	1,191	(23.22%)	1,091	(21.27%)	1,185	(23.10%)	1,011	(19.71%)	4,478	(87.29%)
Complicated	87	(1.70%)	91	(1.77%)	81	(1.58%)	100	(1.95%)	359	(7.00%)
Uncomplicated	63	(1.23%)	72	(1.40%)	63	(1.23%)	95	(1.85%)	293	(5.71%)
Respiratory Tract Infection										
None	683	(13.31%)	793	(15.46%)	1,008	(19.65%)	754	(14.70%)	3,238	(63.12%)
Complicated	341	(6.65%)	218	(4.25%)	156	(3.04%)	251	(4.89%)	966	(18.83%)
Uncomplicated	317	(6.18%)	243	(4.74%)	165	(3.22%)	201	(3.92%)	926	(18.05%)
Wounds										
None	950	(18.52%)	724	(14.11%)	673	(13.12%)	728	(14.19%)	3,075	(59.94%)
Complicated	146	(2.85%)	220	(4.29%)	250	(4.87%)	199	(3.88%)	815	(15.89%)
Uncomplicated Total	245	(4.78%)	310	(6.04%)	406	(7.91%)	279	(5.44%)	1,240	(24.17%)
First aid	68	(1.33%)	126	(2.46%)	155	(3.02%)	75	(1.46%)	424	(8.27%)
Follow-up care	177	(3.45%)	184	(3.59%)	251	(4.89%)	204	(3.98%)	816	(15.91%)

Percentages are oriented to the total of all included diagnoses for the four months' examined data ($N = 5,130 = 100\%$).



22 minutes (range: 10–35 minutes). Based on these results, along with a workweek of 43 hours (220 workdays per year, with 8.1 hours of patient contact per day), 1.66 APN fulltime or equivalent positions would be appropriate for the WICs examined.

LIMITATIONS AND STRENGTHS OF THE STUDY

In this retrospective data analysis, not all influential factors of the current situation could be considered in the WIC studied. For example, in primary care, work is strongly symptom-oriented. The documented diagnoses were therefore not compulsorily listed uniformly in the medical histories (i.e., they are not ICD-10-compliant). These and some incomplete documentation, particularly in the area of ancillary diagnoses and allergies, could limit the significance of this study. This potential bias was countered by using a codebook with detailed definitions of the diagnoses assigned as well as this study's inclusion and exclusion criteria. However, even such quantified data could not provide conclusive information on the actual collaboration of APNs in an interdisciplinary team. In addition, though the results presented above offer foundations for assumptions for other practices and institutions, they are based on a single WIC and cannot be generalised.

The strengths of the present study lie in the volume of the data sample ($N = 12,496$), which allows for a plausible classification of eligible consultations within the scope of APN competency in the WIC studied, and enables statements on performance for this specific field of care. Thanks to the selection of the consultation months studied, seasonal deviations in individual diagnoses could be considered, enabling a representative projection for one entire year.

DISCUSSION

With this study, the optimal number of APN positions in a Swiss WIC was initially determined using diagnosis data from patient consultations. Of all consultations across the four months studied ($N = 12,496$), 41% ($n = 5,130$) resulted in diagnoses of respiratory tract infections, earache, hearing loss, urinary tract infections and wounds. Of these 5,130, just over half fell within the scope of APN competency. This result agrees with the findings of Künzi and Detzel (Künzi & Detzel, 2007), who estimated that 20–60% of Swiss primary care consultations could be delegated to non-physicians. Their results also indicate that patients visiting WICs were predominantly 20–39 years of age, female and living in or near the city where the clinic was located. Seven of ten patients indicated having a general practitioner. WICs therefore appear to represent a low-threshold care requirement secondary to general practitioners for an urban population.

WIC Consultations within the Scope of APN competency

The two largest shares of all included consultations were for respiratory tract infections and wounds ($n = 1,892$; 36.9% and $n = 2,055$; 40.1%, respectively). Of these, 18.1% ($n = 926$) of the respiratory tract infections and 24.2% ($n = 1,240$) of wounds fell within the scope of APN competency. Of the respiratory tract infection consultations eligible for APN treatment, only the first consultation was counted for each case. For wounds, however, both primary and follow-up care was included. For wounds, the share of follow-up care is greater ($n = 816$; 15.9%) than the share of primary care ($n = 424$; 8.3%), which underscores the importance of WIC follow-up care. Therefore, the follow-up care of wounds should be considered a reasonable field of operations for APNs in Switzerland (Delamaire & Lafortune, 2010; Dierick-van Daele et al., 2010), particularly as they normally work more intensively in follow-up and symptom management than in diagnosis and treatment initiation (Delamaire & Lafortune, 2010).

Pursuant to the APN competency definitions used in this study, APNs could take medical histories and assess clinical findings in the studied WICs, make diagnoses and order or perform patient treatment. With their training in clinical assessment, APNs are capable of assessing clinical conditions and initiating diagnostic testing (Lindpaintner, 2010; Pulcini, Jelic, Gul, & Loke, 2010). Allergies, ancillary diagnoses and consultations based on health problems other than the first diagnosis were not excluded from the scope of APN competency in the present study, because these were detectable by an APN taking a medical history and performing the first examination (Delamaire & Lafortune, 2010; Laurant et al., 2008). For medications requiring prescriptions or wound dressings, APNs can recommend treatment preparations or products, but a physician must sign the prescription. In this model, the prescribing physician has the ultimate responsibility for diagnosis and treatment, because the APN works under the physician's supervision (Klein, 2007).

Perspectives for Innovative Care Models in WICs

The present study is based on selected predefined diagnoses and clearly delineated treatment competencies of an APN in cooperation with physicians. On the one hand, this was set to achieve quantifiable study variables; on the other, this is an established model of cooperation whereby APNs perform delegated tasks under physicians' supervision (Klein, 2007; Liu & D'Aunno, 2012). If this model was adopted in the studied WIC, further diagnoses could be made for matters within the relevant, expanded and defined scope of APN competency (de Guzman et al.,



2010). The goal should be to realise an efficient model of long-term occupational collaboration between APNs and physicians. From emergency practices in Canada, we know that APNs independently and successfully implement almost two-thirds (63%) of all consultations, requesting physicians' advise on the remainder (Steiner et al., 2009). In practices employing this model, the average waiting time of patients has been reduced.

Treatment Range of APNs in Walk-in Clinics

In Switzerland, a uniform definition and classification of advanced nursing practice is currently the topic of educational and legal discussions (Lindpaintner, 2010; Mahrer-Imhof, Eicher, Frauenfelder, Oulevey Bachmann, & Ulrich, 2012), including recommendations and opinions of APN associations and interest groups (SBK, 2012). The spectrum of competencies to establish roles for APNs in various scopes of practice remains to be defined, and no occupational regulation exists yet for academically trained APNs (SBK, 2012). Legal bases could provide clarity for independent work, including the rights to diagnose conditions and prescribe medications (Hamric et al., 2009; SBK, 2012). Particularly with the new ways in which APNs are being implemented, treatment paths could offer an opportunity to resolve the current confusion concerning their roles and legal status (Dierick-van Daele et al., 2010; Lindblad et al., 2010).

Implications for Practice and Further Research

In terms of the skill and grade mix research, the introduction of APNs in more than one calculated fulltime position in the WIC studied would be justified (Buchan & O'May, 2000). For successful implementation of APNs in an interdisciplinary WIC team, the entire team must be trained and encouraged to work together (Lindblad et al., 2010; Nasaif, 2012), and treatment procedures must be adjusted to allow continuous APN care. In the on-going discussion and cooperation among all Swiss primary care

providers, it is important to stress APN implementation as an innovative and progressive development. This includes not only the nurses, their professional associations, training centres and employers, but also other health care professionals, political stakeholders, and especially the patients and their representatives, for whom efficient, high-quality care, satisfaction, safety and other aspects must be the ultimate focus of discussion. In order that APNs can perform their jobs to the full in WIC – as in other treatment areas in the Swiss health care system – a rapid legal regulation for job execution by academically trained APNs must be actively promoted.

In the WIC studied, parallel to the introduction of the proposed APN roles, accompanying research will be necessary, including evaluations of treatment processes, cooperation and patient results.

In summary, this study contributes to the implementation of advanced nursing practice in Swiss walk-in primary care clinics. Based on the reported data it can be stated that, by working in interdisciplinary teams, APNs can make meaningfully and very likely economical contributions to primary care. Following the presented work other health professions should be encouraged to reassess their roles, competencies and multi-disciplinary cooperation in order to achieve the full scope of practice and to keep pace with the developments in the health care system.

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