



Waiting time prioritisation for specialist services in Italy: The homogeneous waiting time groups approach

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ABSTRACT

The demand for referrals and diagnostic procedures in Italy has been rising constantly in recent years, making access to diagnostic services increasingly difficult with significant waiting times. A number of Health Authorities (known as Local Health Units) have responded by implementing formalised waiting-time prioritisation tools, giving rise to what are known as Homogeneous Waiting Groups (HWGs). The study describes the implementation of the HWG approach in Italy. This represents a promising tool for improving the prioritisation of patients waiting to see a specialist or to receive a diagnostic test. The study of the Italian HWG experience provides useful insights to improve the outpatient referral process for those countries where the demand prioritisation policies have focused more on inpatient care than outpatient specialist care and diagnostic services.

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1. Introduction

The management of waiting lists is an acknowledged health policy issue in several OECD countries [1]. Traditionally, the focus has been on inpatient waiting times (the time from specialists' addition to the list to the time of treatment). The focus has recently shifted to the wait from general practitioner (GP) referral to diagnosis, consequently including the wait from GP referral to specialist examination, i.e. the 'outpatient' waiting time.

Like in other OECD countries, the demand of referrals for specialist visits and diagnostic procedures in Italy has been rising in recent years, making access to these services difficult [2]. A recent survey suggests that patients experience excessive waits to access outpatient specialist care provided by Health Authorities (known as Local Health Units, LHUs) in many Italian regions [3]. In Italy, waiting time appears more critical for outpatient specialist care and diagnostic services than for elective inpatient admissions. To address this issue, most Italian regions have improved patients' access through better information management of waiting times, process re-engineering and the creation of unified booking centres. Diagnostic and therapeutic pathways are also well established in several regions [4,5]. Recently, prioritisation criteria have been piloted to manage outpatient waiting times based on clinical criteria and professional judgement.

Access to outpatient specialist care and diagnostic services on a "first-come, first-served" approach is neither equitable nor efficient, because patients differ substantially in their clinical needs [6]. Clinical prioritisation is a form of waiting time management, based on the idea of setting shorter waiting times for patients with higher clinical needs, and longer waiting times for patients with lesser needs. Prioritisation can improve both the effectiveness (patients who need a timely access to care reduce their risk of a health decay) and the equity of access to health care (patients' access is based on the priority of their needs) [7,8]. Moreover, it can improve the transparency of waiting list management (adoption by health professionals of explicit and shared criteria) and on efficiency of health care provision (reducing congestion and accumulated backlog) [9].

Prioritising patients on waiting lists is usually carried out in two ways: (i) assigning a priority score to each patient; (ii) segmenting the waiting list through the categorization of patients into a number of priority classes with different service time target. The former has generally shown a stronger reliability for elective surgery and a weaker performance for diagnostic services and outpatient specialist care [10].

The implementation of clinical prioritisation is difficult since it requires detailed reviews of the evidence, and it is more complex for diagnostic services than for therapeutic ones. Hadorn and colleagues [11], considering diagnostic MRI procedures, have shown that assessing relative urgency is complicated by the need to estimate the likelihood that the procedure will provide critical diagnostic information and that subsequent treatment will improve health outcomes. In addition, evidences and recommendations on the appropriate and timely access to

outpatient services are mostly available for some instrumental procedures [12,13] while are rather scanty for other specialist services. As a consequence, when little empirical evidence is available, extensive involvement and cooperation between GPs and specialists is needed to improve the outpatient referral process, prioritising the delivery of outpatient care on the basis of clinical appropriateness and patient severity. To this aim, two strategies in the primary–secondary care interface are recommended: (i) the involvement of specialists in educational activities and (ii) the enhancement of communication among physicians through the dissemination of guidelines with structured referral sheets [14].

Demand management through priority scores represents a widespread policy to face excessive waiting times especially for elective inpatient services [9]. An effective management of waiting lists for outpatient services should call for a prioritisation process in which GPs and specialists co-operate and agree upon the definition of clinical criteria for timely referrals. However, even though rather promising, this particular prioritisation policy, involving both GPs and specialists, is adopted less frequently. In the UK attempts have been made to define timely referrals for some disorders [15] and to manage patients with suspected cancer [16–18]. In Canada 24 statements based on a wide consensus have defined clinically acceptable waiting times for digestive disorders [13]. In New Zealand, Access Criteria for First Specialist Assessment (ACA) were developed in the late 90s for some diagnostic procedures (e.g., gastroscopy and colonoscopy) [19,20]. A similar approach was used in New South Wales in the mid-90s for elective surgery admissions [21,22]; patients without high priority level were considered "staged patient": they were staged on clinical grounds but did not lose their place on the hospital queue.

This kind of approach of waiting list prioritisation for outpatient health services has been adopted in Italy since the end of 90s, involving some LHUs. It is based on the implementation of Homogeneous Waiting Groups (HWGs) agreed upon by GPs and specialists who are involved in the definition of clinical criteria for timely referrals. According to the HWG approach clinical conditions are linked to maximum waiting times according to a quantitative ranking (priority classes) [23]. The main goal of the HWG approach is to redistribute out-patient referrals on the basis of clinical priority. It does not necessarily reduce the demand for referrals, eliminating those deemed inappropriate. Rather it determines a concentration of inappropriate demand in low-priority (deferrable) referrals [24–26].

The present contribution provides a detailed analysis of the HWG approach first implemented in Italy by a pilot health care agency (in the LHU of the Autonomous Province of Trento) which had a leading role in shaping the design, the development and the diffusion of the HWG approach to other Italian regions and LHUs. The study highlights the strength of the adopted prioritisation approach to guarantee an efficient, transparent and equitable access to outpatient care. Moreover, the study provides useful insights to improve the outpatient referral process for those countries where demand prioritisation policies have

focused more on inpatient care than outpatient specialist care and diagnostic services.

Section 2 analyses the implementation process of the HWG approach in Italy. Section 3 shows the main results of the HWGs implementation. Section 4 reports the impact of the pilot adoption of the HWG approach on the perceptions of involved agents (GPs and patients) and the appropriateness of access to A&E services. Section 5 reports some conclusions.

2. Implementation of homogeneous waiting groups

2.1. Description of the HWG approach

The HWG approach for diagnostic procedures was developed at the LHU level according to the following process. First, the LHU medical director (or a representative of the director designated by the management board of the LHU) aims at building consensus between GPs and specialists [23–26] using a ‘plan-do-check-act’ approach and a ‘progressive involvement scheme’ [27]. The medical director sets up a steering committee of representatives of GPs, specialists and the person in charge of the booking system. The committee identifies a set of outpatient services and defines basic criteria for prioritising patients’ access. Then the committee identifies priority categories according to clinical evaluation. The categories were termed Homogeneous Waiting Groups (HWGs) – (“*Raggruppamenti di Attesa Omogenei (or RAO)*”). The allocation of procedures to each HWG is based on the criterion that the maximum waiting time for that diagnostic procedure or specialist consultation should not negatively affect patients’ prognosis. GPs are asked to specify the HWG of the diagnostic procedure or specialist examination upon their referral. Based on this priority code, the booking centre arranges the patient’s appointment. To make a referral, according to Italian law, GPs have to complete a standard form, which includes clinical details of the patient and the diagnostic procedures or consultations requested. Specialists are also asked to use the HWG coding to check and assess the consistency of their priority-group indications with GPs’ decisions. Booking management software is generally introduced to implement the booking system.

2.2. Pilot implementation of HWGs

The first experience of HWGs took place in a district of 85,000 inhabitants (pilot district of Rovereto), which is part of the LHU of the Autonomous Province of Trento with almost 530,000 people. Specialist appointments were allocated by a centralised booking service. Each GP referral was allocated to one hospital. A total of 81 GPs work in the district.

HWGs were developed by a steering group in 2000 which included representatives of GPs, specialists, and the Head of the booking service. The steering group identified five groups of diagnostic visits and procedures as most critical in terms of waiting times: (i) ophthalmology referrals, (ii) neurological and orthopaedic CT scans, (iii) neurological and orthopaedic MR scans, (iv) abdominal ultrasounds, and (v) upper-aortic and peripheral Doppler procedures.

For these procedures and consultations, the steering group identified five clinical groups of homogenous waiting times (HWGs):

- A (maximum waiting time of 3 days),
- B (not more than 10 days),
- C (not more than 30 days),
- E (without a maximum wait),
- P (planned follow-up examination).

For urgent (U) referrals, patients attend the Accident and Emergency (A&E) Department of the hospital. Each category was defined on the assumption that the wait for diagnosis, between GP referral and specialist visit, would not impair the patient’s prognosis.

We emphasise that GPs may not assign a priority code if patients are not considered to belong to one of the priority groups A, B, C or P. Nevertheless, GPs, for their own reasons of transparency with patients, have the option of specifying this explicitly using the letter E.

Initially, only 20 GPs out of 81 (willing to participate in pilot) were involved. For each referral they assigned one of the five HWG groups identified by the steering group.

The scheme was then extended to all 81 GPs in the district, and to other diagnostic visits and procedures. The final operating manual, distributed to all GPs and specialists, consisted of referral instructions and guidelines for 84 diagnostic visits and procedures, each with the same five standardised waiting categories [28]. After three years, all GPs and specialists across the LHU of the Autonomous Province of Trento used HWGs.

Table 1 provides an example of the HWG procedure applied to an orthopaedic visit.

2.3. Objectives of the HWG approach and concordance between GP and specialist

The main goal of the HWG approach is to redistribute out-patient referrals on the basis of clinical priority. It is not to eliminate referrals deemed to be inappropriate but to obtain a timely execution of referrals for patients assigned to the priority classes (HWG) A, B, C or P in order to avoid a negative impact on patients’ prognosis. Priority codes for referrals yield different waiting times for each subgroup of patients while the overall supply remains constant. In this way, waiting times for low or non-priority (deferrable) referrals (HWG E or absence of HWG) could increase if the overall demand rises. However, the management of waiting lists remains transparent.

The process can be synthesised as follows: (i) every referred patient is placed on the waiting list, (ii) the maximum waiting time for each patient with a priority letter A, B, C or P is guaranteed and (iii) waiting times of patients without priority increase when demand increases.

A correct and effective HWGs implementation depends crucially on the degree of agreement (“concordance”) between GPs and specialists about the assessment of the priority level to each referral. To this purpose, the process allows for an ex post assessment (and revaluation) by the

Table 1

Clinical “keywords” for each priority level of orthopaedic examination.

Code on prescription form	Maximum wait	Indications or clinical «keywords»
Urgent HWG A	First aid 3 days	– GP evaluation – Large joint mechanical lock (Shoulder–Elbow–Hip–Knee) with movements limitations – Acute sciatica with inability to maintain erect posture – Acute neck pain – Acute knee pain without injury (surgery is recommended) – Other (10%)
HWG B	10 days	– Treatment resistant acute diseases (e.g., epicondylitis, periarthrititis, when rheumatic disorders of the wrist and hand are suspected) – Malignant or suspected malignant diseases (e.g., osteolysis) – No chronic joint effusion – Other (10%)
HWG C	30 days	– Canalicular syndrome (e.g., carpal tunnel, trigger finger) – Sub-acute disease – Chronic or sub-acute knee pain (surgery is recommended) – Other (10%)
HWG E HWG P	No limit Follow up time	– Other clinical conditions – Check on post discharge and other following up

HWG = Homogeneous Waiting Group.

Other (10%) = other clinical indications, only in few cases.

specialists of the HWG initially assigned by GPs (see Section 3.2).

2.4. Transferability and diffusion of the HWG approach

Italian LHUs have taken a range of approaches to waiting list management [4,5], based on formalised prioritisation tools. In 2002 the National Health Service (NHS) asked regions to consider clinical priority as the main tool for managing access to secondary care (including out-patient services). In 2004 the NHS “Waiting Times” working group, coordinated by the National Agency for Regional Healthcare Services (Agenas), launched a national pilot study which encouraged the use of clinical information to prioritise patients on the waiting list for outpatient diagnostic visits and procedures. Waiting list prioritisation was based on the implementation of the HWG approach in a sample of Italian regions. Participation was voluntary, and 18 LHUs belonging to 12 different regions¹ joined this national pilot study.

Moreover, the National Plan for reductions in waiting times (2010–12) has recommended the development of clinical priority groups at the national level and the monitoring of such policy [5]. At present, several LHUs across Italy make use of the HWG approach and collect data to monitor its implementation.² In most cases the approach to implement HWGs was bottom-up: the process was carried out by a local steering group, and a conference was held to reach formal consensus between GPs and specialists and to develop guidelines for assigning clinical priorities.

¹ The regions were: Campania, Emilia-Romagna, Liguria, Lombardia, Marche, Puglia, Sardegna, Sicilia, Toscana, Umbria, Veneto, and Provincia Autonoma di Trento.

² Provincia Autonoma di Trento (unique LHU), LHUs of the Provincia Autonoma di Bolzano, LHUs of the Umbria Region, LHUs of the Sicily Region, LHu of Lanciano-Vasto-Chieti (Abruzzo Region), LHu of Lecce (Puglia Region), LHUs of Veneto Region, LHu of Ferrara (Emilia-Romagna Region), LHUs of Genova and Savona (Liguria Region), LHu of Viterbo (Lazio Region).

Although most LHUs in the national pilot implemented the HWG approach, some were not able to do so due to: (i) lack of a suitable booking information system; (ii) opposition from clinicians or reluctance to implement changes in current practice mostly from GPs (e.g., due to lack of trade union agreements in the context of primary care); (iii) change in leadership, resulting in difficulties in continuing the programme (e.g., the medical director ceased that activity because of a job change); (iv) change in the board of Directors who decided to use a different approach to manage the waiting lists (e.g., increasing supply instead of prioritising waiting lists).

Conversely, some LHUs not initially involved in the initial pilot introduced the HWG approach at a later stage.

Empirical evidence from different LHUs has shown that an effective and successful implementation of the HWG approach requires the following conditions:

- a “change agent”: the LHu medical director has the behavioural traits of “change agent”, as described in social sciences [29];
- *commitment*: commitment of the change agent expressed through leadership of the LHu;
- *GP-specialist leadership*: strong leadership by some of the GPs and specialists involved in the initial phase;
- *GPs trained as trainers*: GPs involved in the early stages of the project have the role of “trainers” of other GPs in the LHu;
- *specialist collaboration*: specialists willing to visit high-priority patients when required by the booking service within the appropriate time frame;
- *bottom-up approach and trialability*: each LHu or region starts with a small-scale pilot, either in (i) a small geographical area within the LHu or (ii) across the whole LHu with only limited types of referral.

The LHUs which have successfully adopted the HWG approach had some common organisational features: (i) close collaboration between GPs and specialists, which included joint training activities; (ii) identification of

clinical keywords within each priority group; (iii) specification of maximum waiting times for each homogeneous group; and (iv) general improvement in the agreement between GPs and specialists about priority assessment. In these LHUs, the HWG approach has shown to possess the main attributes necessary for an innovation to be easily replicated: observability, trialability and re-invention³ [29].

3. Results of HWGs implementation

3.1. HWG referrals in the pilot district

Table 2 shows the absolute numbers of priority referrals (HWGs A, B, C, E, P) and referrals without a priority letter prescribed by GPs between 2001 and 2012. It displays a rising trend. In 2012 the number of priority referrals was about 38,000, more than six times than in 2002. The increase is observed across each priority group, with larger percentage increases in groups C (visit within 30 days), E (no limit) and P (follow up). Over time, therefore, GPs increasingly use the priority system not only for more urgent cases but also for less urgent ones. Moreover, the last column of table of 2 shows that the percentage of referrals in HWGs A, B, C or P exhibits an increase between 2010 and 2012, following a decrease in 2006–2009.

3.2. Concordance between GPs and specialists in the pilot district

To assess the degree of agreement between GPs and specialists about the priority levels, the steering group encouraged specialists to reassign a HWG to each referred patient at the time of examination.

Table 3 shows the HWG categories assigned by GPs in the pilot district against those assigned by specialists in two years: 2002 (after the introduction of the policy) and 2011 (latest available). To ensure comparability between the two periods, we analysed the same type of referrals (orthopaedic referrals, cardiologic referrals, neurological referrals, angiological referrals, neurological and orthopaedic CT scans, neurological and orthopaedic MR scans, abdominal ultrasounds, upper-aortic and peripheral Doppler).

GPs and specialists agreed on the degree of priority better in 2011 than in 2002. In 2002 the proportion of referrals for which GPs and specialists assigned the same priority was 41% (the ratio between total number of patients on the diagonal and total referrals). This proportion increased to 69% in 2011. In both years GPs assigned a higher priority to patients than specialists for a significant proportion of referrals. In 2002 52% of patients had a higher priority assigned by the GP than by the specialist (the ratio between total number of patients *above* the

diagonal and total referrals). This proportion dropped to 30.5% in 2011. In a few cases specialists assigned a higher priority than GPs. In 2002 this was the case for about 6% of referrals, falling to less than 1% in 2011.

The degree of agreement between the priority assigned by GPs and specialists is assessed using a simple k statistical analysis [30]. The statistical agreement value defines the “concordance” between GPs and specialists. Tests were two-tailed. A p -value of less than 5% was considered statistically significant.

In 2002 the simple kappa statistic was 0.275, which suggests *low* concordance, with a 95% confidence interval of 0.238–0.312. In 2011 it was significantly larger at 0.566, indicating *moderate* concordance with a 95% confidence interval of 0.541–0.591. The difference in concordance between the two years was statistically significant ($\chi^2 = 163.5$, 1 df, p -value < 0.0001).

3.3. Referrals by HWGs across different diagnostic areas in the pilot district

GPs make referrals for a wide range of specialist visits and examinations. Table 4 shows that HWG priority groups are used more often for particular diagnostic areas. In 2011 the referrals with the highest proportion of HWGs included imaging procedures and certain types of specialist visits.

3.4. Variability in the GPs' adoption the HWG approach in the pilot district

We are also interested in variation across different GPs. In 2011, amongst 67 GPs in the pilot district, the proportion of referrals with HWGs (A, B, C, E, P) ranged between 6% and 43.5%, with a mean of 22%, a median of 21% and a standard deviation of 8%. 79% of the GPs had a proportion of referrals with HWGs in a range between 10% and 30%. Variation between GPs is therefore not very high. These variations reflect not only differences in the needs of populations but also different degrees of engagement with the HWG approach.

3.5. Results of the implementation of the HWG approach in the whole LHu of Trento

Table 5 shows the number of referrals from 448 GPs in the LHu of Trento in 2007–2012. The number of referrals in groups A, B and C has increased from about 87,000 in 2007 to about 147,500 in 2012. This implies that HWGs have been increasingly used over time. As a proportion of the total number of referrals, the priority groups A, B and C have increased from 11.4% to 15.2%.

Some groups increased more than others. The proportion in priority group A increased from 1.4% to 1.7%; the proportion in group B from 6.8% to 8%. The proportion in group C shows the largest increase, from 3.2% to 5.6%. Correspondingly, the referrals without a priority letter have been falling in the last three years, from 84.2% to 79.6%.

Table 6 shows the proportion of patients seen by a specialist within the recommended maximum waiting time. In 2009, 75% of patients in priority group A were seen within the recommended time of 3 days; this percentage increased

³ Rogers [29] defines: “Observability” as the degree to which the results of an innovation are visible to others; “Trialability” as the degree to which an innovation may be experimented. “Re-invention” as the degree to which an innovation is changed or modified by a user in the process of adoption and implementation.

Table 2

Absolute number of referrals in HWG groups A, B, C, E, P and without priority letter between 2001 and 2012 in the pilot district.

Priority year	A	B	C	E	P	ABCEP	Without priority letter	Total	% ABCP/Total
2001	145	312	227	113	39	836	N.A	–	–
2002	1,076	2,692	1,281	491	247	5,787	N.A	–	–
2003	1,757	5,711	3,303	963	781	12,515	N.A	–	–
2004	1,689	8,677	4,175	986	1,432	16,959	N.A	–	–
2005	1,683	8,644	4,159	983	1,426	16,895	N.A	–	–
2006	1,714	8,805	4,237	1,001	1,453	17,210	67,305	84,515	19.18
2007	2,136	10,334	5,904	3,033	2,601	24,008	95,513	119,521	17.55
2008	2,709	11,010	6,323	2,772	2,264	25,078	111,433	136,511	16.34
2009	2,643	10,754	6,234	2,203	1,455	23,289	117,795	141,084	14.95
2010	2,992	12,311	8,529	2,139	1,836	27,807	117,674	145,481	17.64
2011	3,122	13,124	10,225	2,663	2,942	32,076	114,390	146,466	20.08
2012	3,318	13,599	12,064	4,780	4,607	38,368	108,794	147,162	22.82

to 86% in 2011 (83% in 2012). Most of the other patients were seen within 10 days.

In 2009, 77% of patients in priority group B were seen within the recommended time of 10 days. This proportion increased to 82% in 2011 and fell to 73% in 2012. Most of the remaining patients were treated within 30 days.

About 85–86% of the patients in group C were seen within the recommended time of 30 days in 2009–2011. This proportion decreased to 80% in 2012.

These results show that progress has been made in 2009–2011 in treating patients within the recommended time for the most urgent groups A and B. In 2012, we observe however a reduction in performance. This can be explained by the local implementation of the national plan on waiting times 2010–2012 which established maximum waiting time targets for 43 outpatient treatments to be guaranteed also for non-priority referrals [5]. Given a fixed capacity of the LHU in the short term, the introduction of a maximum waiting time guarantee determined an increase of waiting times of patients with higher clinical need (HWG A, B and C), as those with less need (HWG E

or no priority) are being treated earlier to comply with the guarantee.

4. An assessment of the impact of the HWG approach in the LHU of Trento

4.1. Evaluation of the HWG approach by GPs

Two surveys on GPs assessment of the HWG approach were conducted in 2004 and 2007 [31,32]. An anonymous questionnaire was sent in 2004 to a sample of 108 GPs in two districts of the LHU (70% of GPs responded). The second survey was conducted by telephone interviews to a large sample of GPs of the LHU (260 out of 448 GPs, 58% of total).

92% of GPs assessed the HWG model as “a useful instrument for improving patients’ access to diagnostic referrals” in the former survey, 91% of GPs in the latter. Moreover, 67% of GPs in the former survey and 80% in the latter one signalled that their patients were satisfied when they used HWG for a referral.

Table 3

Priority groups assigned by GPs (rows) against assignments by specialists (columns) – pilot district – 2002 and 2011.

	Year 2002					
	HWG assigned by specialists					TOT
	A	B	C	E	P	
	HWG assigned by GPs					
A	62	43	53	22	5	185
B	26	116	225	88	12	467
C	5	10	101	49	21	186
E	1	3	13	88	6	111
P	1	0	0	0	57	58
TOT	95	172	392	247	101	1,007
	Year 2011					
	HWG assigned by specialists					TOT
	A	B	C	E	P	
	HWG assigned by GPs					
A	274	114	38	37	13	476
B	10	730	195	133	84	1,152
C	1	3	480	63	43	590
E	0	0	0	43	2	45
P	0	0	0	4	100	104
TOT	285	847	713	280	242	2,367

Table 4

Type of GPs referrals in the pilot district – year 2011 (descending order of HWG use proportion for each type of referral).

Referrals	A	B	C	E	P	No letter	Sum	%ABCEP
Mammography (imaging)	–	189	280	294	746	1,320	2,829	53.3
Physical medicine and rehabilitation (visit)	–	476	532	193	14	1,232	2,447	49.7
Neurosurgery (visit)	2	127	68	2	7	243	449	45.9
Otorhinolaryngology (visit)	214	864	701	117	79	2,621	4,596	43.0
Pulmonology (visit)	112	261	122	7	55	766	1,323	42.1
Neurology (visit)	126	322	288	37	96	1,266	2,135	40.7
Musculoskeletal ultrasound (imaging)	70	253	138	17	4	841	1,323	36.4
Abdominal and soft-tissue masses ultrasound (imaging)	543	1,507	1,381	217	541	7,329	11,518	36.4
Urology (visit)	84	268	349	46	70	1,468	2,285	35.8
Magnetic resonance (imaging)	10	809	810	197	62	3,770	5,658	33.4
Cardiology (visit)	112	553	383	50	146	2,526	3,770	33.0
Gastroenterology (visit)	–	20	39	19	1	161	240	32.9
Rheumatology (visit)	4	115	148	8	8	588	871	32.5
Orthopaedics (visit)	272	1,052	982	60	30	5,018	7,414	32.3
Nephrology (visit)	8	54	46	4	26	318	456	30.3
Endocrinology (visit)	14	102	168	13	7	710	1,014	30.0
Breast ultrasound (imaging)	–	34	32	16	5	204	291	29.9
Computed tomography (imaging)	21	209	109	24	68	1,069	1,500	28.7
Dermatology (visit)	296	1,184	1	533	198	5,757	7,969	27.8
Colonoscopy	–	176	242	23	19	1,253	1,713	26.9
Vascular surgery (visit)	21	58	16	1	3	270	369	26.8
Gastroscopy	–	156	229	15	3	1,124	1,527	26.4
Electromyography	–	242	1	37	1	819	1,100	25.5
Bone radiography (imaging)	578	1,740	1,369	205	111	12,092	16,095	24.9
Dietetics (doctor) (visit)	1	10	38	3	–	158	210	24.8
Electroencephalography	28	61	18	31	11	455	604	24.7
Heart ultrasound (imaging)	6	235	302	123	60	2,320	3,046	23.8
Maxillofacial surgery (visit)	7	60	17	4	4	331	423	21.7
Dietitians (visit)	–	–	40	1	–	170	211	19.4
General surgery (visit)	98	196	–	63	3	1,521	1,881	19.1
Ophthalmology (visit)	206	548	681	56	251	7,639	9,381	18.6
Exercise stress electrocardiography	–	91	94	113	20	1,496	1,814	17.5
Lung radiography (imaging)	12	19	2	3	12	230	278	17.3
Haematology (visit)	6	69	17	7	–	495	594	16.7
Colour Doppler ultrasound (imaging)	112	407	286	51	40	4,644	5,540	16.2
Audiometry	3	32	10	15	22	443	525	15.6
Diabetology (visit)	18	76	90	3	–	1,045	1,232	15.2
Hypertension (internal medicine)	11	40	55	4	–	643	753	14.6
Gynaecology (visit)	70	287	–	23	7	2,625	3,012	12.8
Geriatrics (visit)	2	2	–	1	21	345	371	7.0
Diagnostic and treatment pathways with open access or hospital case manager and other referrals	50	209	134	23	190	35,183	35,789	1.7
Gynaecology ultrasound (imaging)	5	11	7	4	1	1,882	1,910	1.5
Sum of referrals	3,122	13,124	10,225	2,663	2,942	114,390	146,466	21.9

Table 5

Referrals of priority groups A, B, C and other referrals: years 2007–2012 (all referrals from GPs in the Local Health Unit of Trento).

Priority	2007		2008		2009	
	No.	%	No.	%	No.	%
A	10,618	1.4	12,063	1.5	13,545	1.5
B	51,796	6.8	56,046	6.8	62,041	6.9
C	24,301	3.2	29,779	3.6	32,391	3.6
A + B + C	86,715	11.4	97,888	12.0	107,977	12.0
E + P and without priority letter	675,850	88.6	720,429	88.0	792,231	88.0
Total	762,565	100.0	818,317	100.0	900,208	100.0
Priority	2010		2011		2012	
	No.	%	No.	%	No.	%
A	13,745	1.5	15,700	1.6	16,472	1.7
B	68,197	7.2	73,388	7.6	77,130	8.0
C	38,837	4.1	46,027	4.8	53,901	5.6
A + B + C	120,779	12.8	135,115	14.0	147,503	15.2
E	13,114	1.4	16,222	1.7	26,836	2.8
P	15,408	1.6	18,179	1.9	23,267	2.4
A + B + C + E + P	149,301	15.8	169,516	17.6	197,606	20.4
Without priority letter	793,745	84.2	795,863	82.4	770,895	79.6
E + P and without priority letter	822,267	87.2	830,264	86.0	820,998	84.8
Total	943,046	100.0	965,379	100.0	968,501	100.0

Note: The disaggregated number of referrals in HWG E, P and without priority letters are not available from 2007 to 2009.

4.2. Citizens' perceptions of the HWG approach

To ascertain the acceptability and enhance the transparency of the HWG approach, three surveys on citizens' perceptions, based on telephone interviews, were conducted in 2006, 2007 and 2009. The surveys included a sample of 1520 respondents over the age of 25, stratified by district within the territory of the LHU of Trento.

The percentage of respondents who strongly or fairly agree (versus fairly or strongly disagree) about adopting HWGs rather than the traditional "first-come, first-served" approach was 85%, 87% and 95% in the three surveys [33].

Moreover, in 2009 81% of respondents strongly or fairly agree with the statement that the implementation of HWGs was effective in reducing waiting times for more severe pathologies and urgent conditions (73% in 2007).

4.3. Increased appropriateness of the access to A&E services

Inappropriate access to Accident and Emergency (A&E) services is frequently due to excessive waiting times in outpatient care, lending support to the hypothesis that A&E Department utilisation could be reduced by improving

Table 6

Proportion of patients seen by a specialist within the recommended maximum waiting time for priority A, B, C. Years 2009–2012 (all referrals from GPs in the LHU of Trento).

Waiting time (days)	2009		2010		2011		2012	
HWG A (max guaranteed waiting time: 3 days)								
3	10,213	75.4%	11,268	82.0%	13,561	86.4%	13,718	83.3%
10	3,142	23.2%	2,338	17.0%	1,975	12.6%	2,543	15.4%
30	156	1.2%	123	0.9%	155	1.0%	201	1.2%
>30	34	0.3%	16	0.1%	9	0.1%	10	0.1%
Sum of referrals	13,545	100.0%	13,745	100.0%	15,700	100.0%	16,472	100.0%
HWG B (max guaranteed waiting time: 10 days)								
3	10,113	16.3%	15,256	22.4%	17,368	23.7%	15,048	19.5%
10	37,845	61.0%	38,518	56.5%	42,319	57.7%	41,235	53.5%
30	13,649	22.0%	14,096	20.7%	13,256	18.1%	20,389	26.4%
>30	434	0.7%	327	0.5%	445	0.6%	458	0.6%
Sum of referrals	62,041	100.0%	68,197	100.0%	73,388	100.0%	77,130	100.0%
HWG C (max guaranteed waiting time: 30 days)								
3	2,203	6.8%	4,353	11.2%	5,697	12.4%	5,039	9.3%
10	6,640	20.5%	8,207	21.1%	10,373	22.5%	9,367	17.4%
30	18,592	57.4%	19,824	51.0%	22,529	48.9%	28,537	52.9%
>30	4,956	15.3%	6,453	16.6%	7,428	16.1%	10,958	20.3%
Sum of referrals	32,391	100.0%	38,837	100.0%	46,027	100.0%	53,901	100.0%

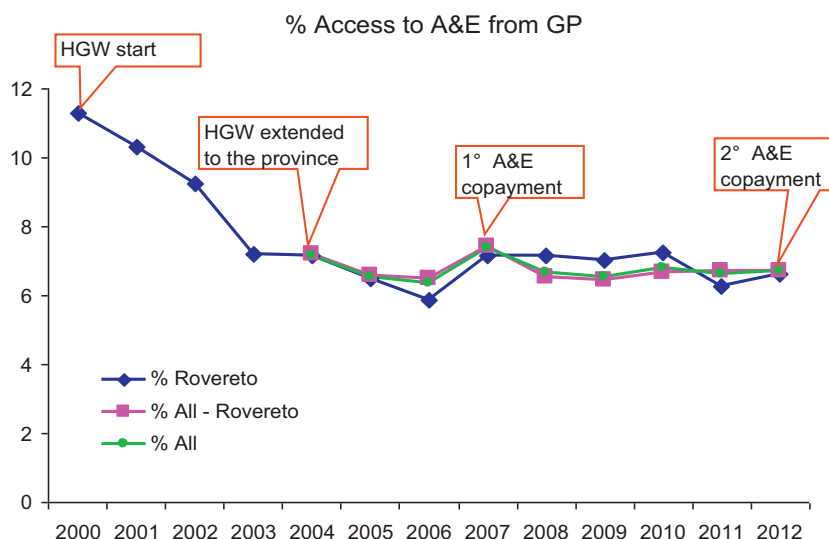


Fig. 1. Percentage of GPs' urgent referrals on daily average visits to A&E Departments in the pilot district and in the whole Province of Trento (2000–2012).

access to secondary care. We examined whether the implementation of HWG approach has been associated with a decrease in A&E visits.

Fig. 1 shows the trend of visits to A&E Departments with urgent GPs' referrals between 2000 and 2012 in the pilot district of Rovereto and in the whole LHU of Trento.

After the implementation of HWG approach in the pilot district of Rovereto, we observe a fall of GP urgent referrals (from 11.5% to 6%) in 2000–2006. A similar (but smoother) trend is observed for all the other A&E Departments, after the diffusion of the HWG approach, in 2004–2006.⁴ After 2006, the percentage of GPs urgent referrals to A&E Departments fluctuates around 6% but these data are more difficult to interpret due to the introduction of a copayment on non-urgent access to A&E services in 2007.

5. Conclusions

Prioritisation of waiting lists for outpatient care can improve both the effectiveness and the equity of access to health care. Moreover, it can have a positive impact on the transparency of waiting list management and the efficiency of health care provision (reducing inappropriate access to A&E services).

This study analysed a particular approach of waiting list prioritisation for outpatient health services based on the Homogeneous Waiting Groups (HWGs). The main goal of the HWG approach is to redistribute out-patient referrals on the basis of clinical priority. Ten years after its inception, HWGs are now used systematically in the pilot LHU. Several other LHUs across Italy are implementing the HWG

approach to improve the management of waiting times for outpatient visits and procedures.

Evidence from the pilot LHU suggests that the proportion of referrals in priority groups is growing steadily over time. The degree of agreement between GPs and specialists has also improved. These results highlight the ability of GPs to become familiar with demand prioritisation. Continuing collaboration between GPs and specialists [14], and the implementation of Information Technology tools in primary-secondary care setting [34–36], may increase further the degree of agreement between health professionals regarding the priority groups assigned.

The diffusion of the HWG approach is easier where some organisational conditions are fulfilled: the presence of “change agents” and the development of a close collaboration between GPs and specialists. The HWG approach possesses the main attributes necessary for an innovation to be replicated: observability, trialability and re-invention.

The development of HWGs is a promising tool for improving the prioritisation of patients waiting to see a specialist or to receive a diagnostic test. The recent National Plan for reductions in waiting times introduced by the Ministry of Health recommended the development of clinical priority groups at national level and the subsequent monitoring of such policy. HWGs are therefore likely to become a permanent feature of the Italian healthcare system.

The study of the Italian HWG experience can provide useful insights to those countries where demand prioritisation policies have focused more on inpatient care than outpatient specialist care and diagnostic services.

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⁴ To confirm the improvement of appropriateness in access to A&E services after the implementation of HWGs, two surveys conducted in 2004 (pilot district) and 2007 (whole LHU) signalled that most of GPs (63 out of 76 according the first survey, and 183 out of 260 according the second survey) reduced the number of patients sent with urgent referrals to the A&E Department.

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