



# EKIV Newsletter 1/2015

edited by

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in cooperation with *Gesundes Kinzigtal* Ltd., AOK Baden-Württemberg,  
and Sozialversicherung für Landwirtschaft, Forsten und Gartenbau  
(SVLFG) als Landwirtschaftliche Krankenkasse

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## Editorial

Beginning with the current issue, our newsletter appears in a slightly modified form: From now on, the EKIV Newsletter is edited by the Division of General Practice at Freiburg University's Medical Center (head: Prof. Wilhelm Niebling), whereas the previous editions were edited by Freiburg University's Department of Medical Psychology and Medical Sociology. This comes along with a slight change in personnel: Ulrich Stöbel, who co-edited the previous issues together with Achim Siegel, has gone into retirement in September 2014. Still, he lends us his support in the future. Achim Siegel, now working with the Division of General Practice at Freiburg University's Medical Center, remains managing editor of the newsletter.

In the first contribution to the current issue, we summarize some results of the first wave of GKIC's member survey which took place in late 2012 and early 2013. That survey focused two topics: First, the members of GKIC rated their respective "doctor of confidence", i.e. they reported their satisfaction with various aspects of care by the doctor. Second, they scored different aspects of *Gesundes Kinzigtal* Integrated Care as a system of care. The contribution in the current issue of newsletter focuses on a specific question of the first topic: Which particular aspects of care determine members' (i.e. patients') global satisfaction with their doctor?

In the second contribution to this issue we discuss a topic which we already had in our very first EKIV Newsletter (issue 1/2009): Has the GKIC management succeeded to avoid a classical risk selection? To put it the other way round: Has GKIC succeeded to enroll first and foremost insurants whose morbidity is above-average? Our analysis will demonstrate that the answer is yes, i.e. GKIC has indeed succeeded to invert a classical risk selection policy.

On pages 12 and 13 we report current data on GKIC such as the number of members who have enrolled into certain health programs. On page 14 we list articles and papers on the GKIC evaluation which appeared from October 2012 until February 2015. Papers which had been published earlier were listed in previous issues of our newsletter (which may be downloaded from <http://www.ekiv.org/en/newsletter-archiv.php>). On page 15 of this issue we inform on future events when the evaluation of GKIC will be an issue.

Your questions on our newsletter's topics, as well as any other feedback, are always welcome. We look forward to answering your email (to [info@ekiv.org](mailto:info@ekiv.org) or [achim.siegel@uniklinik-freiburg.de](mailto:achim.siegel@uniklinik-freiburg.de)).

With best regards,  
Achim Siegel & Wilhelm Niebling

## Evaluation of *Gesundes Kinzigtal* Integrated Care (GKIC):

### Selected results of the GeKiM study (Gesundes Kinzigtal Mitgliederbefragung, first survey)

In 2011 the EKIV (Evaluations-Koordinierungsstelle Integrierte Versorgung), together with the GKIC management conceived a new trend study which was to survey GKIC member satisfaction with their doctors of confidence on the one hand and with the integrated care system on the other. Member satisfaction with the doctors of confidence should cover not only aspects of doctor-patient communication but also aspects of doctors' treatment and practice organization (such as, e.g., waiting time for an appointment as well as within the practice when an appointment had been made). This study is called 'GeKiM study'; the acronym stands for 'Gesundes Kinzigtal – Mitgliederbefragung'.

The following contribution focuses a certain aspect of GKIC member satisfaction: How is patient satisfaction with particular aspects of care correlated with patients' global satisfaction with their doctor?

#### **Methods**

The GeKiM study conforms to the design of a trend study: Periodically, a certain number of GKIC members – i.e. patients who have enrolled into GKIC – are surveyed with the aid of a standardized questionnaire. The questionnaire is sent to the members by the GKIC management via normal mail, and thereafter members send the completed questionnaire free-of-charge to the evaluation institute. The study is to find out changes in health-related attitudes, behaviour and ratings over time. During the first survey which took place in late 2012 and early 2013, the questionnaire was sent to a random member sample comprising 3.038 people.

Member satisfaction was surveyed with the so-called „Weisse-Liste-Ärzte- Fragebogen“.<sup>1</sup> This questionnaire contains 33 items with which patients rate aspects of practice organization, doctor-patient communication, doctor's treatment, and global satisfaction with the doctor. Patients are asked to rate their satisfaction by the aid of a Likert scale, containing the answers „is true“ (“trifft voll zu”), „is rather true“ (“trifft eher zu”), „is rather not true“ (“trifft eher nicht zu”), „is not at all true“ (“trifft überhaupt nicht zu”), and sometimes “cannot judge” (“kann ich nicht beurteilen”). Socio-demographic data and patient satisfaction with the integrated care system were surveyed by items which had been developed by the authors.

#### **Selected results of the first GeKiM survey<sup>2</sup>**

Until Februar 2013, 717 completed questionnaires had been sent to the evaluation institute (reponse rate: 23.6%). 56.5% of the responders were female; the mean age was 59.2 years. 62% of the respondents had a lower secondary education, and slightly more than half of them (51%) indicated that they were chronically ill. Compared with the general population, then, the responders of the GeKiM-1 study have a higher mean age and an above-average prevalence of some chronic illness. Thus, this sample represents quite well the socio-demographic characteristics of the GKIC membership as a whole.<sup>3</sup>

<sup>1</sup> Cf. Weisse Liste (2010a). Fragebogen Weisse-Liste-Ärzte. Haus- und Fachärzte. Gütersloh: Bertelsmann-Stiftung; Weisse Liste (2010b). Weisse-Liste-Ärzte. Methodendokumentation. Entwicklung eines Fragebogeninstruments für die haus- und fachärztliche Versorgung. Gütersloh: Bertelsmann-Stiftung.

<sup>2</sup> The following results have been published in German and in greater detail by Siegel A, Stößel U (2014): Patientenorientierung und Partizipative Entscheidungsfindung in der Integrierten Versorgung *Gesundes Kinzigtal*. In: Pundt J (Hg.): Patientenorientierung: Wunsch oder Wirklichkeit? Bremen: Apollon, pp. 195-230.

<sup>3</sup> Siegel A, Stößel U, Gaiser K, Hildebrandt H (2008). Integrierte Vollversorgungssysteme und soziale Ungleichheit – das Beispiel „Gesundes Kinzigtal“. *Public Health Forum* 2008 (59): 26-28. Cf. also the following article in this newsletter issue.

## Determinants of global patient satisfaction with their doctor

Global patient satisfaction with the doctor is often measured by patient willingness to recommend their doctor to others (e.g. close friends or relatives). This holds, too, for the questionnaire we had used in the GeKiM study. The question „Would you recommend this doctor to your best friend?“ could be answered by marking one of the five following answers: „definitely“, „probably“, „maybe“, „probably not“, and „definitely not“. A global willingness to recommend one's doctor may be presented as the proportion of patients who answered on this question “definitely“ or „probably“. Thus, the global willingness to recommend one's doctor in the GeKiM study (first survey) is 84.6%, with 55.1% responding “definitely” and 29.5% responding “probably”. The remaining 15.4% did not recommend their doctor or simply did not answer the question (missing values). Until now it is not possible to compare these results validly with other surveys because there are no other studies which have used the same questionnaire as well as the same way to recruit study participants.

An important research question is: How is patient satisfaction with particular aspects of care correlated with patients' global satisfaction with their doctor? In other words: Which individual aspects of care explain the global patient satisfaction best? Or to put it in more technical terms: Which particular satisfaction items co-vary strongest with global patient satisfaction? To answer this question, we calculated bivariate correlation coefficients between each particular item and global satisfaction (cf. table 1). Each correlation coefficient reveals, then, how closely (i.e. how strongly) a particular item co-varies with global patient satisfaction, i.e. how stringently a particular item explains global satisfaction.

In table 1, the resulting correlation coefficients are ranked according to their absolute value: At the top, then, are those items with the statistically greatest explanatory power (with respect to global satisfaction), at the bottom are items with a statistically lower explanatory power. All correlation coefficients contained in table 1 differ significantly from “0” ( $p < 0.01$ ).

Tab. 1: Bivariate correlation coefficients between the item „willingness to recommend one’s doctor“, and particular aspects of care<sup>4</sup>

Particular item	Correlation coefficient Pearson’s r (N)
The doctor is responsive to my questions, worries, and fears	0.56 (N=656)
The doctor makes enough time for the treatment	0.53 (N=661)
The doctor listens carefully to me	0.51 (N=650)
In case of an illness the doctor informs me about the different treatment possibilities	0.50 (N=613)
The doctor explains diagnoses, causes, and treatment methods in such a way that I understand everything	0.50 (N=650)
When the doctor proposes a treatment or medical examination, he explains exactly to me which benefits and risks are associated therewith	0.50 (N=633)
The doctor has a pleasant and kind appearance	0.50 (N=664)
The doctor includes me in decisions regarding medical examinations and treatments	0.48 (N=611)
The doctor makes physical examinations thoroughly	0.47 (N=684)
The doctor regularly asks about the tolerance of the prescribed drugs	0.46 (N=590)
The doctor clearly indicates how long and in what dose I must take the prescribed drugs	0.45 (N=639)
In case of referrals the doctor transfers the results timely to other physicians, and he/she is in turn informed about the results of other physicians	0.41 (N=603)
Within the practice my sphere of intimacy is protected	0.40 (N=673)
I have the impression that the doctor refers me to a specialist if necessary	0.40 (N=684)
The staff of the practice makes me feel welcome	0.38 (N=683)
The practice makes the impression to be well organized	0.37 (N=684)
Consultation time, vacations and consultation substitutions are clearly communicated	0.34 (N=666)
I have the impression that personal patient documents are treated confidentially	0.34 (N=674)
The practice staff avoids speaking about my health problems when other patients are around (e.g. in the accreditation area)	0.25 (N=627)
The rooms of the practice are appealingly arranged	0.25 (N=672)
The time span between arranging an appointment and the appointment itself is adequate in this practice	0.25 (N=675)
The waits in this practice are adequate	0.24 (N=678)
I have the impression that private patients are preferentially dealt with in this practice	-0.24 (N=417)
The medical equipment has a modern appearance	0.23 (N=621)
There is enough space in the waiting area so that one’s distance to other patients can be kept	0.21 (N=670)
The rooms of the practice are clean and tidy	0.20 (N=666)
Normal duration of wait within the practice	0.20 (N=652)
Normal wait for an appointment with the doctor	0.16 (N=626)
Sometimes I feel pressed to make use of additional services and pay for them on my own	-0.12 (N=604)

*Explication of table 1:* The willingness to recommend one’s doctor was gathered with the above-mentioned question. The exact wording of particular items is presented in the first column of the table. Survey participants could take a stand on these statements as follows: „is true“ („trifft voll zu“), „is rather true“ („trifft eher zu“), „is rather not true“ („trifft eher nicht zu“) or „is not at all true“ („trifft überhaupt nicht zu“). If participants answered „I cannot judge“, the answer was excluded from the analysis.

The results presented in table 1 may be interpreted as follows: Items from the domain ‚doctor-patient communication‘ correlate, as a rule, strongest with patient willingness to recommend their doctor. The doctor’s empathy plays obviously a major role (item „the doctor is responsive to my questions, worries, and fears“); the correlation coefficient is highest in case of this item ( $r=.56$ ). It is remarkable that all seven items from the ‚communication‘ domain rank among the eight highest correlations. Solely the second rank („the doctor makes enough time for the treatment“) is occupied by an item which does not belong to the domain of ‚doctor-patient communication‘ but to the ‚treatment‘ domain. Ranks 9 to 14 are occupied by items which, too, belong to the ‚treatment domain‘. Items belonging to the domain ‚staff and practice organization‘ rank lower; the highest importance among this latter group of items

<sup>4</sup> The wording of the items in the table is taken from Weisse Liste (2010a).

can be attributed to the item "the staff of the practice makes me feel being welcome" ( $r=.38$ ). All other items from the domain 'staff and practice organization' including the items describing the length of waits rank even lower.

### ***Discussion of the presented results***

Global patient satisfaction with their 'doctors of confidence' within GKIC, operationalized by patient willingness to recommend the doctor, is explained best by the perceived quality of doctor-patient communication. Aspects describing medical treatment have, from patients' view, a somewhat lower importance. Items belonging to the domain 'staff and practice organization' (including e.g. the duration of waits) rank clearly lower with respect to patient willingness to recommend a doctor. This pattern of results conforms to similar surveys.<sup>5</sup> This result does not mean, though, that treatment aspects are in principle less important than the quality of doctor-patient communication. Nevertheless it means that, given the current standard of medical treatment and doctor-patient communication in doctors' practices, communication aspects 'make the difference' as concerns patient willingness to recommend a doctor. Moreover, this result seems to indicate that doctors who seek to further improve their patients' global satisfaction could achieve this most likely by improving their communication with patients.

Achim Siegel, Ulrich Stößel

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<sup>5</sup> Bestmann B, Verheyen F (2010): Patientenzufriedenheit. Ergebnisse einer repräsentativen Studie in der ambulanten ärztlichen Versorgung. Hamburg: Techniker Krankenkasse; Stahl K, Lietz D, Riechmann M, Günther W (2012). Patientenerfahrungen in der Krankenhausversorgung: Revalidierung eines Erhebungsinstruments. Zeitschrift für Medizinische Psychologie 21: 11-20; Siegel A, Rudolf K, Böhringer D, Wuermeling M, Reinhard T, Niebling W (2013): Zufriedenheit von Patienten mit dem niedergelassenen Augenarzt - Ergebnisse einer Befragung im Augennetz Südbaden. In: Z. prakt. Augenheilkd 2013; 34 (9): 363-366; Pickerinstitut Deutschland (2013). Picker Report 2013. Zentrale Faktoren der Patienten- und Mitarbeiterzufriedenheit. Draft Version vom 22. April 2013.

## External evaluation of *Gesundes Kinzigtal* Integrated Care (GKIC):

### Inverted risk selection in *Gesundes Kinzigtal* Integrated Care (GKIC): Age- and gender-standardized morbidity among GKIC members compared to non-members in 2006-08<sup>1</sup>

'Gesundes Kinzigtal Integrated Care' (GKIC) is one of the few population-based integrated care systems in Germany. By coordinating health care utilization for a defined population in the Kinzigtal region in Southwest Germany, GKIC strives to increase the quality of the local health care system and to curb rising health care costs in the region. GKIC explicitly refrains from preferably selecting the traditional "good risks". Instead, GKIC has adopted an elaborated contractual framework which incites GKIC providers to enrol rather high-risk and high-morbidity insurants. These incentives are to lead GKIC and the associated health care providers to integrate first and foremost older people and insurants with an above-average morbidity or morbidity risk into its integrated care network.

In this paper, we investigate to what degree GKIC has reached this latter objective: We analyze the socio-demographic and morbidity structure of insurants in the Kinzigtal region during the first three years of GKIC's existence (2006-08). For each of these three years, socio-demographic variables and morbidity figures are compared among the enrolled and the non-enrolled insurants. These analyses are based on health insurers' claims data. The results show that GKIC has performed according to the incentives: The extended preventive and care management potential of GKIC has indeed been offered first and foremost to insurants with a higher (age- and gender-adjusted) morbidity.

#### ***GKIC's attempt to avoid a classic risk selection: the conception***

GKIC's operative activities are based on provision contracts which were concluded in 2006 by the two statutory health insurers AOK and LKK Baden-Wuerttemberg on the one hand and the management company 'Gesundes Kinzigtal GmbH' on the other. The management company acts as an 'integrated care management company' according to §§ 140 a-d of volume V of the German Social Insurance Code (Fünftes Buch Sozialgesetzbuch – SGB V) which is the statutory basis of organizing integrated care in Germany.

When designing the details of the provision contracts, the contracting parties wanted to block any incentives that could stimulate a selection of 'good risks' by GKIC and its partner providers or a strategy of postponing necessary medical services or even keeping necessary services from patients.<sup>2</sup> The following regulations are to serve this aim:

- 1) Enrolment into GKIC's integrated care system and becoming a member of GKIC is completely voluntary for the insurants. If an insurant stays out, she or he will be served further on according to statutory health care regulations (usual care). If an enrolled insurant wants to opt out of the GKIC, she or he may quit at the end of each quarter and without giving reasons.
- 2) Insurants' enrolment into GKIC is not incentivized through immediately financial means (such as, e.g., a reduced insurance premium). Nonetheless, enrolled insurants are invited to participate in special health programs largely free of charge.

<sup>1</sup> This paper has been excerpted from the following article: Siegel A, Köster I, Schubert I, Stöbel U (2014): Utilization Dynamics of an Integrated Care System in Germany: Morbidity, Age, and Sex Distribution of *Gesundes Kinzigtal* Integrated Care's Membership in 2006-2008. In: Janssen C, Swart E, Lengerke T (eds.): Health Care Utilization in Germany. Theory, Methodology, and Results. Foreword by Ronald M. Anderson. New York etc.: Springer, pp. 321-335. We like to thank Springer for kindly permitting us to publish this excerpt in EKIV Newsletter 1/2015.

<sup>2</sup> Hermann C, Hildebrandt H, Richter-Reichhelm M, Schwartz FW, Witznath W (2006): Das Modell "Gesundes Kinzigtal". Managementgesellschaft organisiert Integrierte Versorgung einer definierten Population auf Basis eines Einsparcontractings. *Gesundheits- und Sozialpolitik* (5-6): 11-29; Siegel A, Stöbel U, Gaiser K, Hildebrandt H (2008). Integrierte Vollversorgungssysteme und soziale Ungleichheit – das Beispiel „Gesundes Kinzigtal“. *Public Health Forum* 2008 (59): 26-28; Hildebrandt H, Hermann C, Knittel R, Richter-Reichhelm M, Siegel A, Witznath W (2010): *Gesundes Kinzigtal* Integrated Care: Improving population health by a shared health gain approach and a shared savings contract. *International Journal of Integrated Care* (10): 1-15. Available Online: <http://www.ijic.org/index.php/ijic/article/view/539/1051>, last access February 25, 2013.

3) Enrolled insureds' free choice of doctor and/or hospital is not restricted.

These three regulations ensure that health care providers and the management company can convince insureds to enrol only by the argument that GKIC provides a higher 'health utility' or 'health benefit' than usual care. Moreover, in a system characterized by those three regulations it would be senseless to achieve relative cost savings by withholding or postponing necessary health services, i.e. by under-utilisation: If this was indeed the case, insureds would opt out of GKIC or reclaim such services later (the contract period is nine years at least!). The 'exit option' may be exercised in two variants: First, the insured may cancel only her GKIC membership without changing her primary care doctor (who might have convinced her to enrol). Second, the insured might wish to cancel GKIC membership and switch to a primary care doctor who is in no way associated with GKIC. This latter option variant is very real as about 45 % of all registered doctors in the region are not associated with GKIC. In other words: Amidst a competitive environment in which GKIC has to prove itself, those three regulations will probably invalidate any hypothetical attempt of GKIC to achieve relative cost savings by under-use of health services.

The probably most effective regulation with which a selection of 'good risks' is to be prevented is the following:

4) The financial result of GKIC is tantamount to the contribution margins<sup>3</sup> of all AOK resp. LKK insureds residing in the Kinzigtal region regardless whether these are enrolled or not. This means that the costs of all potential enrollees are the decisive variable and not the costs of a subgroup of enrollees which might be more or less arbitrarily selected by GKIC.

This means that it makes no economic sense for GKIC and its partner providers to preferably enrol only a subgroup consisting of those insureds who are 'good risks' in the traditional sense of the term. Instead, the fourth stipulation incentivizes a different enrolment policy: By first and foremost enrolling those insureds with surpassing health care costs or a high morbidity risk (and presumably fast-growing health care costs in the future), the potential for relative cost savings and thus a growing total contribution margin is obviously the greatest. In contrast, if the traditional 'good risks' were preferably enrolled, the contribution margin's growth potential would be comparatively small because if actual health care costs are low (and the morbidity risk is low, too), potential cost savings in the future will be low, too. This means that the comparatively healthy insureds – i.e. those who are traditionally regarded as 'good risks' – do not constitute GKIC's primary target group. On the contrary, if GKIC and its partnering providers act rationally, they first and foremost convince insureds with outstanding health care costs and/or a surpassing morbidity risk to enrol so that these insureds can be treated more effectively and more efficiently by exploiting GKIC's extended preventive and treatment potential.

### ***Structural characteristics of GKIC's membership: an 'inverted risk selection' in action***

If GKIC's factual enrolment process works in accordance with this theoretical conception, we should be able to find e.g. a higher morbidity among enrolled insureds as compared with non-enrolled ones – at least during the first years of GKIC's existence. The following analysis is based on insureds' claims data of 2006-08, i.e. the three first years of GKIC's existence. As the absolute number of enrolled LKK insureds is very low during that time period – only 120 LKK insureds had enrolled at December 31, 2007 –, we refer hereafter to AOK insureds only.

### **Socio-demographic characteristics of enrolled vs. non-enrolled insureds**

Table 1 contains the distribution of enrolled vs. non-enrolled insureds according to gender and age group as of December 31, 2008. To simplify the description, table 3 contains only those insureds who were continually insured by AOK throughout the year 2008.

<sup>3</sup> Cf. In greater detail Hildebrandt et al. 2010.

Table 1: Distribution of enrolled vs. non-enrolled AOK insurants according to gender and age group as of December 31, 2008 (only insurants who were continually insured by AOK throughout 2008)

	IC / enrolled		NIC / non-enrolled		Total	
	Count	%	Count	%	Count	%
Women	2174	56.0	11798	51.7	13972	52.3
Men	1710	44.0	11025	48.3	12735	47.7
< 18 years	346	8.9	4050	17.7	4396	16.5
18-29 years	278	7.2	3141	13.8	3419	12.8
30-39 years	258	6.6	2523	11.1	2781	10.4
40-49 years	579	14.9	3713	16.3	4292	16.1
50-59 years	564	14.5	2925	12.8	3489	13.1
60-69 years	631	16.2	2336	10.2	2967	11.1
70-79 years	813	20.9	2583	11.3	3396	12.7
80-89 years	389	10.0	1367	6.0	1756	6.6
> 89 years	26	0.7	185	0.8	211	0.8
Total	3884	100.0	22823	100.0	26707	100.0

It can be seen from table 1 that women are over-represented among the enrolled insurants: Among all (continually insured) insurants residing in the Kinzigtal region, women make up 52.3 %, whereas their proportion among the enrolled insurants is 56 %. Furthermore, the older age groups – i.e. insurants who are 50 years or older – are clearly over-represented among GKIC members (enrolled insurants): 62 % of the enrolled insurants are 50 years or older whereas among all (continually insured) AOK insurants only 44 % are 50 years or older. The mean age among the enrolled insurants (continually insured throughout 2008 by AOK) is 54.5 years, in contrast to 45.4 years among all AOK insurants in 2008 (continually insured in 2008 by AOK).

These differences are a first hint that insurants with an above-average morbidity might have been enrolled into GKIC as a primary target group. To confirm this conjection, one needs to analyze morbidity data.

### Age- and gender-standardized morbidity among enrolled vs. non-enrolled insurants

Table 2 presents the proportion of insurants with multi-morbidity. The proportion is adjusted as to age and gender. An 'insurant with multi-morbidity' has been defined thus: An insurant is 'multi-morbid' if her or his claims data contain at least three ICD-10 codes from different ICD-10 subgroups according to the DIMDI classification scheme<sup>4</sup>, documented in at least three quarters of the year in question. Thus an insurant is classified as multi-morbid in a given year if her or his claims data contain, e.g., (i) one code from the sub-group 'affective disorders' (ICD-10: F30-F39), (ii) another code from the sub-group 'hypertension' (I10-I15) and still another code from the sub-group 'ischaemic heart diseases' (I20-I25), with each code documented in at least three quarters of the year in question. As the number of quarters (3 out of 4) is crucial for the prevalence calculation, only those insurants were considered who were continually insured by AOK throughout a given year – all other insurants had been excluded from the analysis.

<sup>4</sup> DIMDI (Deutsches Institut für Medizinische Dokumentation und Information) (2013): Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme. 10. Revision, German Modification, Version 2013. Available online: <http://www.dimdi.de/static/de/klassi/icd-10-gm/kodesuche/onlinefassungen/htmlgm2013/index.htm>, last access: February 28, 2013.

*Table 2: Proportion of insurants with multi-morbidity according to year and enrolment status (enrolment status as of December 31 of a given year), standardized for age and gender (reference group: all insurants residing in the Kinzigtal region in a given year)*

year	Proportion with multi-morbidity in %		
	IC / enrolled	NIC / non-enrolled	Total
2006	37.8	23.7	24.4
2007	38.3	25.3	26.5
2008	39.6	26.6	28.8

It can be seen from table 2 that the age- and gender-standardized multi-morbidity prevalence is about 1 ½ times higher among the enrolled as compared to the non-enrolled insurants.

We get similar results when considering another morbidity figure: the Charlson comorbidity index.<sup>5</sup> The Charlson index contains 19 comorbidity categories, ranging from myocardial infarct and congestive heart failure to metastatic solid tumour and AIDS. Each category has a specific weight (with, e.g., '1' for a myocardial infarct). The sum of all 19 weighted categories for a given person makes up her or his overall Charlson comorbidity score. The overall score reflects the person's cumulative increased likelihood of one-year mortality: The higher the score, the more severe is the person's burden of comorbidity.

Table 3 presents the mean of the overall Charlson score for enrolled vs. non-enrolled AOK insurants. As in the preceding table, only those insurants are considered here who were continually insured by AOK throughout a given year.

*Table 3: Mean value of the Charlson comorbidity score according to year and enrolment status (enrolment status as of December 31 of a given year), standardized for age and gender (reference group: all insurants residing in the Kinzigtal region in a given year)*

Year	Charlson comorbidity index (mean)		
	IC / enrolled	NIC / non-enrolled	Total
2006	0.72	0.50	0.51
2007	0.72	0.52	0.54
2008	0.77	0.55	0.59

Table 2 and table 3 show that the age- and gender-standardized morbidity among the enrolled insurants is considerably higher than among the non-enrolled ones. These differences are statistically significant for each given year ( $p < .001$ ). Thus, the standardized prevalence of multi-morbidity in 2008 amounts to 39.6 % among the enrolled compared with 26.6 % among the non-enrolled insurants (ratio: 1.49). Both prevalence figures rose somewhat during the years: In 2006, e.g., the corresponding figures amounted to 37.8 % (enrolled) and 23.7 % (non-enrolled), resulting in a prevalence ratio of 1.59. These results are rather similar to those using the Charlson comorbidity index: For 2006, the index mean amounted to 0.72 among the enrolled and 0.50 among the non-enrolled (ratio: 1.44). For 2008, the index mean was slightly higher in both groups: 0.77 among the enrolled and 0.55 among the non-enrolled insurants (ratio: 1.40).

## **Conclusion**

Having considered morbidity figures that have been standardized according to age and gender, we may conclude that the average morbidity is considerably higher among the enrolled AOK insurants,

<sup>5</sup> Charlson ME, Pompei P, Ales KL, MacKenzie CR (1987): A new method of classifying prognostic comorbidity in longitudinal studies. Development and validation. *J Chron Dis* 40 (5): 373-383; Quan H, Sundararajan V, Halfon P, Fong A, Burnand B, Luthi JC, Saunders LD, Beck CA, Feasby TE, Ghali WA (2005): Coding algorithms for defining comorbidities in ICD-9-CM and ICD-10 Administrative data. *Med Care* 43 (11): 1130-1139.

i.e. among the members of GKIC, than among the non-enrolled AOK insurants living in the Kinzigtal region. The ratio indicating the 'surplus morbidity' among the enrolled ranges between 1.4 and 1.6, depending on which indicator and which year we use: When we consider multi-morbidity prevalence as of December 31, 2006, we get a ratio of 1.59 (prevalence among the enrolled 37.9 % vs. 23.7 % among the non-enrolled). When using the Charlson comorbidity index score as of December 31, 2008, we get a morbidity ratio of 1.40 (0.77 among the enrolled vs. 0.55 among the non-enrolled). Whatever indicator we use: 'Gesundes Kinzigtal Integrated Care' has obviously enrolled first and foremost insurants with an above-average morbidity to treat them with the full potential of integrated care and special preventive programs.

These results confirm that GKIC's recruitment policy has indeed worked in accordance with the plan of the GKIC founders: GKIC has indeed avoided the selection of the traditional 'good risks'. The results mean that there is even a kind of 'inverted risk selection' in the sense that those insurants with an above-average morbidity have preferably been enrolled.

Thus GKIC has demonstrated that a Managed Care system does not necessarily produce the kind of risk selection which we know from the history of Managed Care systems in the USA and Switzerland. By carefully designing the rules of provision contracts, risk selection may not only be avoided in a Managed Care system, but even reversed: The founders of GKIC have obviously created a Managed Care system in which insurants with an above-average morbidity are the preferred target group.

These results are even more noteworthy if we consider that a morbidity-oriented risk compensation scheme among Germany's statutory health insurers – which in part compensates those health insurers whose insurants' morbidity is above the average – was introduced in Germany not before 2009.

Achim Siegel, Ingrid Köster, Ulrich Stößel, Ingrid Schubert

## Current data on Gesundes Kinzigtal Integrated Care (GKIC) (as of December 2014)

<b>Number of actively enrolled insurants *</b>	<b>9.640*</b>
- thereof AOK Baden-Württemberg insurants / full members	8.712
- thereof AOK Baden-Württemberg insurants / basic members**	489
- thereof LKK Baden-Württemberg insurants / full members	425
- thereof LKK Baden-Württemberg insurants / basic members**	14

\* Enrolled members who deceased, changed residence to outside the Kinzigtal region or resigned because of other reasons are not considered in this list.

\*\* Basic members differ from full members in that their family doctor („doctor of confidence“) does not have a cooperation contract with GKIC.

<b>Number of patients with higher morbidity risk</b>	<b>5.611</b>
- thereof insurants of AOK Baden-Württemberg	5.303
- thereof insurants of LKK Baden-Württemberg	308

<b>GKIC preventive programs and national disease management programs (DMPs)</b>	<b>No. of participants</b>
Smoking cessation („Rauchfreies Kinzigtal“)	223
Prevention/treatment of congestive heart failure („Starkes Herz“)	94
Lifestyle intervention for patients with metabolic syndrome („Gesundes Gewicht“)	201
Prevention of osteoporosis and osteoporotic fractures („Starke Muskeln – feste Knochen“)	876
Early intervention by psychotherapists in cases of acute personal crises („Psychotherapie akut“)	466
Specific intervention for patients with depression („Besser gestimmt“)	32
Specific medical care for the elderly in nursing homes („Ärzte plus Pflege“)	120
Back pain prevention program („Starker Rückhalt – Mein gesunder Rücken“)	66
Antihypertensive program („Im Gleichgewicht – Mein Blutdruck im Griff“)	38
Early treatment of rheumatism („Beweglich bleiben – Rheuma frühzeitig behandeln“)	11
Cooperative health coaching	37
Ophtalmological check-up for children	
- U10	539
- U11	425
- amblyopia	172
Individually blistered drug packages („Medifalter-Markttest“) – closed	104
Wound management („Gut verbunden“) – in abeyance	4
AGil (Active health promotion in the elderly) – in abeyance	511
Electronic health card – in abeyance	1300
DMP diabetes mellitus type II	954
DMP coronary heart disease	361
DMP breast cancer	19
DMP asthma	132
DMP COPD	184
Number of people who have participated in a program or activity of GKIC	13.371

(continued on the following page)

<b>Other programs offered in cooperation with AOK specialists or third parties</b>	<b>No. of participants</b>
Social service (case management by social workers according to GP's recommendation)	294
Diet counselling by AOK BW specialists	94
Specific fall prophylaxis for the elderly	159
Aqua fitness	1.879
Sponsored membership in sports clubs	447
Lecture series on health issues (no. of participants since 2009)	3.799

<b>Physicians and other providers contracting with GKIC</b>	<b>97</b>
- GPs/family physicians	27
- specialists	24
- pediatricians	7
- psychotherapists	5
- hospitals	6
- physiotherapists	10
- nursing homes	11
- outpatient nursing services	5
- social-therapeutic services	1
<b>Other partners cooperating with GKIC</b>	<b>63</b>
- pharmacies	16
- sports clubs	38
- fitness centres	6

## Recent publications on the evaluation of *Gesundes Kinzigtal* Integrated Care (October 2012 until February 2015)

Hildebrandt H, Pimperl A, Schulte T, Hermann C, Riedel H, Schubert I, Köster I, Siegel A, Wetzel M (2015): Triple-Aim-Evaluation in der Integrierten Versorgung *Gesundes Kinzigtal* – Gesundheitszustand, Versorgungserleben und Wirtschaftlichkeit. In: Bundesgesundheitsblatt 2015, published online 05 February 2015. DOI 10.1007/s00103-015-2120-y

Schulte T, Siegel A, Pimperl A, Roth M, Hildebrandt H (2015): Patientenorientierung und –aktivierung: Auswirkungen auf die Ergebnisqualität in der Integrierten Versorgung *Gesundes Kinzigtal*. In: Amelung VE et al. (Hrsg.): Patientenorientierung. Schlüssel für mehr Qualität. Berlin: MWV, S. 123-130. [http://www.mwv-berlin.de/buecher-bestellen/product\\_info.php?info=p661\\_Patientenorientierung.html](http://www.mwv-berlin.de/buecher-bestellen/product_info.php?info=p661_Patientenorientierung.html)

Siegel A, Stößel U (2014): Patientenorientierung und Partizipative Entscheidungsfindung in der Integrierten Versorgung *Gesundes Kinzigtal*. In: Pundt J (Hg.): Patientenorientierung: Wunsch oder Wirklichkeit? Bremen: Apollon, S. 195-230. [http://www.apollon-press.de/fileadmin/publikationen-bilder/Apollon\\_Pundt\\_Leseprobe.pdf](http://www.apollon-press.de/fileadmin/publikationen-bilder/Apollon_Pundt_Leseprobe.pdf)

Siegel A, Köster I, Schubert I, Stößel U (2014): Utilization Dynamics of an Integrated Care System in Germany: Morbidity, Age, and Sex Distribution of *Gesundes Kinzigtal* Integrated Care's Membership in 2006-2008. In: Janssen C, Swart E, Lengerke Tv (eds.): Health Care Utilization in Germany. Theory, Methodology, and Results. Foreword by Ronald M. Anderson. New York etc.: Springer, S. 321-335. <http://www.springer.com/gp/book/9781461491903>

Hildebrandt H (2013): Integrierte Versorgung: Wo stehen wir? Eine Public Health orientierte Bestandsaufnahme. In: Public Health Forum 21 (78): 2-4. <http://www.sciencedirect.com/science/article/pii/S0944558712000960>

Konnegen D, Roth M, Deschler T, Boschert S (2013): Höhere Qualität und Effizienz: Kooperation von Ärzten und Pflegeheimen im *Kinzigtal*. In: Public Health Forum 21 (78): 12-13. <http://www.sciencedirect.com/science/article/pii/S0944558712000972>

Siegel A, Stößel U (2013): Evaluation der Integrierten Versorgung *Gesundes Kinzigtal*: Bisherige Ergebnisse. In: Public Health Forum 21 (78): 13-15. <http://www.sciencedirect.com/science/article/pii/S0944558712001023>

Mnich E, Hofreuter-Gätgens K, Salomon T, Swart E & Knesebeck Ovd (2013): Ergebnis-Evaluation einer Gesundheitsförderungsmaßnahme für ältere Menschen. In: Gesundheitswesen 72 (02): e5-e10 <https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0032-1311617>

Siegel A, Köster I, Schubert I, Stößel U (2012): Integrierte Versorgung *Gesundes Kinzigtal*: Ein Modell für regionale Prävention und Schnittstellenoptimierung. In: Kirch W, Hoffmann T, Pfaff H (Hrsg.): Prävention und Versorgung, Stuttgart/New York: Thieme, S. 148-164. <https://www.thieme.de/shop/Praxisverwaltung-und-Krankenhausmanagement/Kirch-Hoffmann-Pfaff-Prävention-und-Versorgung-9783131694614/p/000000000275954401>

Hölzel L, Vollmer M, Kriston L, Siegel A, Härter M (2012): Patientenbeteiligung bei medizinischen Entscheidungen in der Integrierten Versorgung *Gesundes Kinzigtal*: Ergebnisse einer kontrollierten Kohortenstudie. In: Bundesgesundheitsblatt 55: 1524-1533. <http://www.springermedizin.de/patientenbeteiligung-bei-medizinischen-entscheidungen-in-der-iundes-kinzigtal-ergebnisse-einer-kontrollierten-kohortenstudie/3599620.html>

## **Scientific conferences with contributions focusing on *Gesundes Kinzigtal* Integrated Care**

### ***15th International Congress on Integrated Care (ICIC), Edinburgh / UK, 25.-27.03.2015***

*“Managing and Assessing Improvement in Population Health in *Gesundes Kinzigtal*” – Workshop/Session, March 26, 2015, 11.15 Uhr – 12:30 Uhr with following contributions:*

- Pimperl, Alexander F: Measuring the Triple Aim dimension “population health” in Integrated Care Systems (ICS) using claims data: the approach of the German ICS “*Gesundes Kinzigtal*”
- Schulte, Timo: Comparing Accountable Care Organizations (ACOs) in the public sector of the US healthcare system to the Integrated Care System (ICS) *Gesundes Kinzigtal* in Germany and potential lessons learned
- Schubert, Ingrid: Evaluation of the population based Integrated Care System (ICS) “*Gesundes Kinzigtal*”: results from the health care utilization study over six years of observation

*“Assessing and managing populations at risk with new technologies in Integrated Care” – Workshop/Session, March 27, 2015, 10:30 Uhr – 12:30 Uhr with the following contribution:*

- Pimperl, Alexander F: Turning data into value: experiences with business intelligence technologies from the Integrated Care system *Gesundes Kinzigtal*

For further informations cf.

[http://www.integratedcarefoundation.org/conference/15\\_annual](http://www.integratedcarefoundation.org/conference/15_annual)