

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 26843-1-1PC	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2008/076243	International filing date (<i>day/month/year</i>) 12 September 2008 (12.09.2008)	Priority date (<i>day/month/year</i>) 14 September 2007 (14.09.2007)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant CORVENTIS, INC.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 16 March 2010 (16.03.2010)
	Authorized officer Athina Nickitas-Etienne e-mail: pt04.pct@wipo.int

**(WO/2009/036329) MULTI-SENSOR PATIENT MONITOR TO DETECT IMPENDING
CARDIAC DECOMPENSATION**

Biblio. Data Description Claims National Phase Notices Documents

Latest bibliographic data on file with the International Bureau



Pub. No.: WO/2009/036329 **International Application No.:** PCT/US2008/076243
Publication Date: 19.03.2009 **International Filing Date:** 12.09.2008

IPC: A61B 5/00 (2006.01)

Applicants: CORVENTIS, INC. [US/US]; 2226 North First Street, San Jose, CA 95131 (US) (All Except US).
 LIBBUS, Imad [US/US]; (US) (US Only).
 BLY, Mark, J. [US/US]; (US) (US Only).
 JAMES, Kristofer, J. [US/US]; (US) (US Only).
 MAZAR, Scott, T. [US/US]; (US) (US Only).
 WANG, Jerry, S. [US/US]; (US) (US Only).

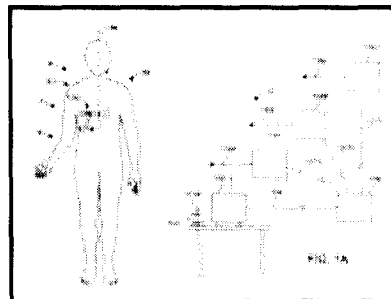
Inventors: LIBBUS, Imad; (US).
 BLY, Mark, J.; (US).
 JAMES, Kristofer, J.; (US).
 MAZAR, Scott, T.; (US).
 WANG, Jerry, S.; (US).

Agent: SHIMMICK, John, K. et al.; Townsend And Townsend And Crew LLP, Two Embarcadero Center, 8th Floor, San Francisco, CA 94111-3834 (US).

Priority Data: 60/972,537 14.09.2007 US
 60/972,512 14.09.2007 US
 61/055,666 23.05.2008 US

Title: MULTI-SENSOR PATIENT MONITOR TO DETECT IMPENDING CARDIAC DECOMPENSATION

Abstract: Systems and methods of detecting an impending cardiac decompensation of a patient measure at least two of an electrocardiogram signal of the patient, a hydration signal of the patient, a respiration signal of the patient or an activity signal of the patient. The at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined with an algorithm to detect the impending cardiac decompensation.



Designated States: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
 African Regional Intellectual Property Org. (ARIPO) (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW)
 Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)
 European Patent Office (EPO) (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR)
 African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,

PATENT COOPERATION TREATY

JKS

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
JOHN K. SHIMMICK
TOWNSEND AND TOWNSEND AND CREW
LLP
TWO EMBARCADERO CENTER, 8TH FLOOR
SAN FRANCISCO, CA 94111-3834

026843-0001 OPL

Date of mailing
(day/month/year) 12 NOV 2008

Applicant's or agent's file reference 26843-1-1PC		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/US 08/76243	International filing date (day/month/year) 12 September 2008 (12.09.2008)	Priority date (day/month/year) 14 September 2007 (14.09.2007)	
International Patent Classification (IPC) or both national classification and IPC IPC(8) - A61B 5/00(2008.04) USPC - 600/301			
Applicant CORVENTIS, INC.			

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220. 7/14/09

2-12-09

3. For further details, see notes to Form PCT/ISA/220.

Docketed Undocketed
 Transferred Noted
 Not Docketed
 Abandoned
 Action: Resp to Written Op.
 Due: 7-14-09

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Date of completion of this opinion 04 November 2008 (04.11.2008)	By: <u>Lee W. Young</u> Authorized officer: Townsend and Townsend and Crew LLP
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PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

PATENT COOPERATION TREATY

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From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

To: JOHN K. SHIMMICK TOWNSEND AND TOWNSEND AND CREW LLP TWO EMBARCADERO CENTER, 8TH FLOOR SAN FRANCISCO, CA 94111-3834		Date of mailing (day/month/year) 12 NOV 2008
Applicant's or agent's file reference 26843-1-1PC		FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US 08/76243 ✓		International filing date (day/month/year) 12 September 2008 (12.09.2008)
Applicant CORVENTIS, INC.		

026843-00210PC

1. The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35

For more detailed instructions, see the notes on the accompanying sheet.

2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized Office: <input type="checkbox"/> Docketed <input type="checkbox"/> Undocketed <input type="checkbox"/> Transmitted <input type="checkbox"/> Noted <input type="checkbox"/> Not Docketed <input type="checkbox"/> Abandoned PCT Helpdesk: 571-272-4300 PCT OSP: 571-273-7774
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Form PCT/ISA/220 (January 2004)

Action: Act 19 (See notes on accompanying sheet)
 Due: 1-12-09
 By: [Signature]
 Townsend and Townsend and Crew LLP

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/76243

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - on paper
 - in electronic form
 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in electronic form
 - furnished subsequently to this Authority for the purposes of search
4. In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/76243

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-42	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-42	NO
Industrial applicability (IA)	Claims	1-42	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-42 lack an inventive step under PCT Article 33(3) as being obvious over US 2007/0208262 A1 by Kovacs in view of US 2007/0142732 A1 by Brockway et al. (hereinafter "Brockway").

Regarding claim 1, Kovacs discloses a method comprising: measuring at least two of an electrocardiogram signal of the patient (para. [0068]), hydration signal of the patient (para. [0036]), a respiration signal of the patient (para. [0036]) or an activity signal of the patient (para. [0035]). However, Kovacs does not explicitly teach the step of combining the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation. However, Brockway discloses the step of combining the at least two of the electrocardiogram signal, hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation (para. [0004]). Given this teaching, it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine the measurement parameters disclosed by Kovacs with the combining the at least two of the electrocardiogram signal, hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation as disclosed by Brockway because, as Brockway teaches, using combinations of these parameters leads to advantageous diagnostic regimes that better predict the onset of cardiac decompensation, which allows for earlier diagnosis and intervention, which in turn leads to better patient treatment.

Regarding claim 2, Kovacs and Brockway disclose the method of claim 1. Kovacs further discloses the method of claim 1 wherein the at least two comprise at least three of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0035]-[0036], [0068]). Brockway discloses the step of measuring and combining multiple signals to detect the impending cardiac decompensation (para. [0004]).

Regarding claim 3, Kovacs and Brockway disclose the method of claim 2. Kovacs further discloses the method of claim 2 wherein the at least three comprise at least four of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0035]-[0036], [0068]). Brockway discloses the step of measuring and combining multiple signals to detect the impending cardiac decompensation (para. [0004]).

Regarding claim 4, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are used simultaneously to determine impending cardiac decompensation (paras. [0035]-[0036], [0068]-[0070]).

Regarding claim 5, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein combining comprises using the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to look up a value in a previously existing array (paras. [0032], [0068], [0069]).

Regarding claim 6, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein combining comprises at least one of adding, subtracting, multiplying, scaling or dividing the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0026]-[0028], [0035]-[0036]).

Regarding claim 7, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined with at least one of a weighted combination, a tiered combination or a logic gated combination, a time weighted combination or a rate of change (para. [0036] -- rate of change, [0039]).

Regarding claim 8, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein a flag status is determined in response to the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0068]-[0070] --here, "flag status" is interpreted to mean some physiological condition (the "flag") of importance that may change to indicate decompensation).

Regarding claim 9, Kovacs and Brockway disclose the method of claim 8. Brockway further discloses the method of claim 8 wherein the flag status is determined in response to a change in the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0068]-[0070]).

--Continued in Supplemental Box--

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/76243

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
---Box V, Section 2---

Regarding claim 10, Kovacs and Brockway disclose the method of claim 8. Brockway further discloses the method of claim 8 wherein additional signal measurements of the patient are made in response to the flag status (Fig. 3, element 307; it would have been obvious to a person having ordinary skill in the art at the time of the invention that clinical action would entail additional signal measurements).

Regarding claim 11, Kovacs and Brockway disclose the method of claim 1. Kovacs further discloses the method of claim 1 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined in response to a time of day (para. [0105]).

Regarding claim 12, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal comprise at least one of a derived signal, a time averaged signal, a filtered signal or a raw signal (Fig. 3, element 302).

Regarding claim 13, Kovacs and Brockway disclose the method of claim 1. Kovacs further discloses the method of claim 1 further comprising determining baseline values of the patient for the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal and wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal signals comprise changes from the baseline values (paras. [0104]-[0105]).

Regarding claim 14, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal comprise differences from baseline values of a patient population and wherein the impending decompensation is detected in response to the differences from the baseline value of the patient population (para. [0028]-[0032]).

Regarding claim 15, Kovacs and Brockway disclose the method of claim 1. Kovacs further discloses the method of claim 1 wherein the hydration signal comprises an impedance signal (para. [0036]) and the activity signal comprise an accelerometer signal (para. [0035]).

Regarding claim 16, Kovacs and Brockway disclose the method of claim 1. Kovacs further discloses the method of claim 1 wherein the activity signal comprise an accelerometer signal to determine a posture of the patient (para. [0035]).

Regarding claim 17, Kovacs and Brockway disclose the method of claim 16. Kovacs further discloses the method of claim 16 wherein the accelerometer signal comprises a three dimensional inclination signal to determine a three dimensional orientation of the patient (para. [0035]).

Regarding claim 18, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 wherein a temperature signal is combined with the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation (para. [0048]).

Regarding claim 19, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 further comprising transmitting the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to a remote site where the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined to detect the impending cardiac decompensation (para. [0004], [0062]-[0063]).

Regarding claim 20, Kovacs and Brockway disclose the method of claim 1. Brockway further discloses the method of claim 1 further comprising transmitting instructions from a remote site to a processor supported with the patient, and wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined with the processor in response to the instructions to detect the impending cardiac decompensation (para. [0004], [0072]).

Regarding claim 21, Kovacs discloses system comprising: circuitry to measure at least two of an electrocardiogram signal of the patient (para. [0068]), a hydration signal of the patient (para. [0036]), or an activity signal of the patient (para. [0035]); and a processor system comprising a tangible medium in communication with the circuitry (para. [0041]). Kovacs does not disclose the processor system configured to combine the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation. However, Brockway does disclose the processor system configured to combine the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation (paras. [0004], [0069]).

Given this teaching, it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine the measurement parameters disclosed by Kovacs with the combining the at least two of the electrocardiogram signal, hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation as disclosed by Brockway because, as Brockway teaches, using combinations of these parameters leads to advantageous diagnostic regimes that better predict the onset of cardiac decompensation, which allows for earlier diagnosis and intervention, which in turn leads to better patient treatment.

Regarding claim 22, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 1 wherein the processor system comprises a least one processor a location remote from the patient configured to detect the decompensation (paras. [0062]-[0063]).

Regarding claim 23, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor system, supported with the patient, receives instructions transmitted from a remote site and combines the at least two in response to the instructions to detect the impending cardiac decompensation (paras. [0062]-[0063]).

---Continued in Supplemental Box---

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/76243

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
---Box V, Section 2---

Regarding claim 24, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 21 wherein the at least two comprise at least three of the electrocardiogram signal (para. [0068]), the hydration signal (para. [0036]), the respiration signal (para. [0036]) or the activity signal (para. [0035]). Brockway further discloses the system of claim 21 wherein the at least three are measured and combined to detect the impending cardiac decompensation (para. [0036]).

Regarding claim 25, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 24 wherein the at least three comprise at least four of the electrocardiogram signal (para. [0068]), the hydration signal (para. [0036]), the respiration signal (para. [0036]) or the activity signal (para. [0035]). Brockway further discloses the system of claim 21 wherein the at least four are measured and combined to detect the impending cardiac decompensation (para. [0036]).

Regarding claim 26, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor system simultaneously uses the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to determine impending cardiac decompensation (paras. [0035]-[0036], [0068]-[0070]).

Regarding claim 27, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein combining comprises the processor system using the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to look up a value in a previously existing array (paras. [0032], [0068], [0069]).

Regarding claim 28, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein combining comprises at least one of adding, subtracting, multiplying, scaling or dividing the at least two of the electrocardiogram signal, hydration signal, the respiration signal or the activity signal (paras. [0026]-[0028], [0035]-[0036]).

Regarding claim 29 Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor system combines the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal with at least one of a weighted combination, a tiered combination or a logic gated combination, a time weighted combination or a rate of change (para. [0036]-rate of change, [0039]).

Regarding claim 30 Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor system determines a flag status in response to the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0068]-[0070])--here, "flag status" is some physiological condition (the "flag") of importance that may change to indicate decompensation).

Regarding claim 31, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 28 wherein the processor system determines the flag status in response to a change in the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal (paras. [0068]-[0070]).

Regarding claim 32, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 28 wherein the processor system affects the circuitry to make additional signal measurements of the patient in response to the flag status (Fig. 3, element 307; it would have been obvious to a person having ordinary skill in the art at the time of the invention that clinical action would entail additional signal measurements by a clinician or by the system).

Regarding claim 33, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 21 wherein the processor system combines the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal in response to a time of day (para. [0105]).

Regarding claim 34 Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal comprise at least one of a derived signal, a time averaged signal, a filtered signal or a raw signal (Fig. 3, element 302).

Regarding claim 35, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 21 wherein the processor determines baseline values of the patient for the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal and wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal signals comprise changes from the baseline values (paras. [0104]-[0105]).

Regarding claim 36, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal comprise differences from baseline values of a patient population and wherein the impending decompensation is detected in response to the differences from the baseline value of the patient population (para. [0035]).

Regarding claim 37, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 21 wherein the hydration signal comprises an impedance signal and the activity signal comprise an accelerometer signal (para. [0036]).

Regarding claim 38, Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 21 wherein the activity signal comprise an accelerometer signal to determine a posture of the patient (para. [0035]).

---Continued in Supplemental Box---

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 08/76243

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
--Box V, Section 2--

Regarding claim 39 Kovacs and Brockway disclose the system of claim 21. Kovacs further discloses the system of claim 36 wherein the accelerometer signal comprises a three dimensional inclination signal to determine a three dimensional orientation of the patient (para. [0035]).

Regarding claim 40, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor system combines a temperature signal with the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to detect the impending cardiac decompensation (para. [0048]).

Regarding claim 41 Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 wherein the processor transmits the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal to a remote site where the at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are combined to detect the impending cardiac decompensation (para. [0062]-[0063]).

Regarding claim 42, Kovacs and Brockway disclose the system of claim 21. Brockway further discloses the system of claim 21 further comprising transmitting instructions from a remote site to a processor supported with the patient, and wherein the processor combines at least two of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal in response to the instructions to detect the impending cardiac decompensation para. ([0072]).

Claims 1-42 have industrial applicability under PCT Article 33(4) as the subject matter can be made or used in industry.

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From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

SHIMMICK, John, K.
Townsend And Townsend And Crew LLP
Two Embarcadero Center, 8th Floor
San Francisco, CA 94111-3834
ETATS-UNIS D'AMERIQUE

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Date of mailing (day/month/year) 07 October 2008 (07.10.2008)	Applicant's or agent's file reference 26843-1-1PC	International application No. PCT/US2008/076243 /	International filing date (day/month/year) 12 September 2008 (12.09.2008) -
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 14 September 2007 (14.09.2007) ✓		
Applicant CORVENTIS, INC. et al			

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
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Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
14 September 2007 (14.09.2007) ✓	60/972,537 ✓	US	23 September 2008 (23.09.2008)
14 September 2007 (14.09.2007) ✓	60/972,512 ✓	US	23 September 2008 (23.09.2008)
23 May 2008 (23.05.2008) ✓	61/055,666 ✓	US	23 September 2008 (23.09.2008)

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 Townsend and Townsend and Crew LLP
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