

# APPENDIX S1. SUPPLEMENTAL MATERIAL

TABLE S1: Hospitals sorted according to MINSAL categorisations and proposed partitions using Euclidean or Pearson's correlation distances.

Code	Name	MINSAL_ORI	MINSAL_MOD	CON_EUC	CON_COR
101100	Hospital Dr. Juan Noe Crevanni (Arica)	High	High adults	1	1
102100	Hospital Dr. Ernesto Torres Galdames (Iquique)	High	High adults	1	2
103100	Hospital Dr. Leonardo Guzman (Antofagasta)	High	High adults	2	1
103101	Hospital Dr. Carlos Cisternas (Calama)	High	High adults	2	2
103102	Hospital Dr. Marcos Macuada (Tocopilla)	High	High adults	2	3
103103	Hospital 21 de Mayo (Taltal)	High	High adults	2	3
103104	Hospital de Mejillones	High	High adults	2	3
104100	Hospital San Jose del Carmen (Copiapo)	High	High adults	2	1
104101	Hospital Dr. Jeronimo Mendez Arancibia (Chanaral)	High	High adults	2	1
104102	Hospital Dr. Florencio Vargas (Diego de Almagro)	High	High adults	2	4
104103	Hospital Provincial del Huasco Monsenor Fernando Ariztia Ruiz (Vallenar)	High	High adults	3	4
104104	Hospital Dr. Manuel Magalhaes Medling (Huasco)	High	High adults	2	3
105100	Hospital San Juan de Dios (La Serena)	High	High adults	1	5
105101	Hospital San Pablo (Coquimbo)	High	High adults	2	5
105102	Hospital Dr. Antonio Tirado Lanas (Ovalle)	High	High adults	2	5
105103	Hospital Dr. Humberto Elorza Cortes (Illapel)	High	High adults	2	5
105104	Hospital de Salamanca	High	High adults	2	3
105105	Hospital San Juan de Dios (Combarbala)	High	Paediatric	2	6
105106	Hospital Dr. Jose Arrano (Andacollo)	High	Psychiatric	2	5
105107	Hospital San Juan de Dios (Vicuna)	High	High adults	2	5
105108	Hospital San Pedro (Los Vilos)	High	High adults	2	5
106100	Hospital Carlos Van Buren (Valparaiso)	High	High adults	2	1
106102	Hospital Dr. Eduardo Pereira Ramirez (Valparaiso)	High	High adults	2	1
106103	Hospital Claudio Vicuna ( San Antonio)	High	High adults	2	2
106104	Hospital Del Salvador (Valparaiso)	High	High adults	2	1
106105	Hospital San Jose (Casablanca)	High	High adults	2	6
107100	Hospital Dr. Gustavo Fricke (Vina del Mar)	High	High adults	2	1
107101	Hospital San Martin (Quillota)	High	High adults	2	1
107102	Hospital de Quilpue	High	High adults	2	1
107103	Hospital Dr. Mario Sanchez Vergara (La Calera)	High	Paediatric	2	3
107104	Hospital Santo Tomas (Limache)	High	High adults	2	3
107105	Hospital San Agustin (La Ligua)	High	High adults	2	5
107106	Hospital Dr. Victor Hugo Moll (Cabildo)	High	Paediatric	2	5
107107	Hospital de Petorca	High	High adults	3	6
107108	Hospital Adriana Cousino (Quintero)	High	High adults	2	6
107109	Hospital Juana Ross de Edwards (Penablanca. Villa Alemana)	High	Paediatric	2	6
107110	Hospital Centro Geriatrico Paz de la Tarde (Limache)	High	High adults	2	2
108100	Hospital de San Camilo (San Felipe)	High	High adults	1	2
108101	Hospital San Juan de Dios (Los Andes)	High	High adults	1	1
108102	Hospital San Francisco (Llaillay)	High	High adults	2	5
108104	Hospital San Antonio (Putendo)	High	High adults	2	5
108105	Hospital Psiquiatrico Dr. Philippe Pinel (Putendo)	High	High adults	2	4
109100	Complejo Hospitalario San Jose (Santiago. Independencia)	High	High adults	2	1
109101	Hospital Clinico de Ninos Dr. Roberto del Rio (Santiago. Independencia)	High	High adults	2	1
109102	Instituto Psiquiatrico Dr. Jose Horwitz Barak (Santiago. Recoleta)	High	High adults	2	1
109103	Instituto Nacional del Cancer Dr. Caupolican Pardo Correa (Santiago. Recoleta)	High	High adults	2	1
109104	Hospital de Til Til	High	High adults	2	5
110100	Hospital San Juan de Dios (Santiago. Santiago)	High	High adults	2	2
110110	Instituto Traumatologico Dr. Teodoro Gebauer	High	High adults	2	2
110120	Hospital Dr. Felix Bulnes Cerda (Santiago. Quinta Normal)	High	High adults	2	2
110130	Hospital Adalberto Steeger (Talagante)	High	High adults	2	2
110140	Hospital de Penaflor	High	High adults	2	2
110150	Hospital San Jose (Melipilla)	High	High adults	2	1
110160	Hospital de Curacavi	High	High adults	2	6
111100	Hospital Clinico San Borja-Arriaran (Santiago. Santiago)	High	High adults	2	2
111101	Hospital Clinico Metropolitano El Carmen Doctor Luis Valentin Ferrada	High	High adults	2	1
111195	Hospital de Urgencia Asistencia Publica Dr. Alejandro del Rio	High	High adults	2	1
112100	Hospital Del Salvador (Santiago. Providencia)	High	High adults	2	1
112101	Hospital Dr. Luis Tisne B. (Santiago. Penalolen)	High	High adults	2	1
112102	Hospital de Ninos Dr. Luis Calvo Mackenna (Santiago. Providencia)	High	High adults	3	4

112103	Instituto Nacional de Enfermedades Respiratorias y Cirugia Toracica	High	High adults	2	1
112104	Instituto de Neurocirugia Dr. Alfonso Asenjo	High	High adults	2	2
112105	Instituto Nacional de Rehabilitacion Infantil Presidente Pedro Aguirre Cerda	Low	Low	2	1
112106	Instituto Nacional Geriatrico Presidente Eduardo Frei Montalva	Low	Low	2	1
112107	Hospital Hanga Roa (Isla De Pascua)	Low	Low	2	3
113100	Hospital Barros Luco Trudeau (Santiago. San Miguel)	Low	Low	2	1
113130	Hospital Dr. Exequiel Gonzalez Cortes (Santiago. San Miguel)	Low	Low	2	2
113150	Hospital San Luis (Buin)	Low	Low	2	1
113160	Hospital de Enfermedades Infecciosas Dr. Lucio Cordova (Santiago. San Miguel)	Low	Low	2	2
113170	Hospital Psiquiatrico El Peral (Santiago. Puente Alto)	Low	Low	2	1
113180	Hospital El Pino (Santiago. San Bernardo)	Low	Low	1	2
114101	Complejo Hospitalario Dr. Sotero del Rio (Santiago. Puente Alto)	Low	Low	2	1
114102	Hospital San Jose de Maipo	Low	Low	2	5
114103	Hospital Padre Alberto Hurtado (San Ramon)	Low	Low	2	1
114105	Hospital Clinico Metropolitano La Florida Dra. Eloisa Diaz Inzunza	Low	Low	2	1
115100	Hospital Regional de Rancagua	Low	Low	2	1
115101	Hospital Santa Filomena (Graneros)	Low	Low	2	3
115102	Hospital de Coinco	Low	Low	2	3
115103	Hospital Del Salvador (Peumo)	Low	Low	2	3
115104	Hospital Dr. Ricardo Valenzuela Saez (Rengo)	Low	Low	2	1
115105	Hospital San Vicente de Tagua-Tagua	Low	Low	2	2
115106	Hospital de Pichidegua	Low	Low	2	5
115107	Hospital San Juan de Dios (San Fernando)	Low	Low	2	2
115108	Hospital Mercedes (Chimbarongo)	Low	Low	2	3
115109	Hospital de Nancagua	Low	Low	2	5
115110	Hospital de Santa Cruz	Low	Low	2	1
115111	Hospital de Marchigue	Low	Low	2	5
115112	Hospital de Pichilemu	Low	Low	2	5
115113	Hospital de Lolol	Low	Low	2	3
115114	Hospital de Litueche	Low	Low	2	3
116100	Hospital San Juan de Dios (Curico)	Low	Low	2	2
116101	Hospital de Teno	Low	Low	2	5
116102	Hospital de Molina	Low	Low	2	3
116103	Hospital de Hualane	Low	Low	2	3
116104	Hospital de Licanten	Low	Low	2	5
116105	Hospital Dr. Cesar Garavagno Burotto (Talca)	Low	Low	2	2
116106	Hospital de Curepto	Low	Low	2	3
116107	Hospital de Constitucion	Low	Low	2	3
116108	Hospital Presidente Carlos Ibanez del Campo (Linares)	Low	Low	1	1
116109	Hospital Dr. Abel Fuentealba Lagos de San Javier	Low	Low	2	1
116110	Hospital San Jose (Parral)	Low	Low	2	4
116111	Hospital San Juan de Dios (Cauquenes)	Low	Low	2	2
116112	Hospital Dr. Benjamin Pedreros (Chanco)	Low	Low	2	5
117101	Hospital Clinico Herminda Martin (Chillan)	Low	Low	2	2
117102	Hospital de San Carlos	Low	Low	2	1
117103	Hospital Comunitario de Salud Familiar de Bulnes	Low	Low	2	5
117104	Hospital Comunitario de Salud Familiar Pedro Morales Campos (Yungay)	Low	Low	2	3
117106	Hospital Comunitario de Salud Familiar de Quirihue	Low	Low	2	5
117107	Hospital Comunitario de Salud Familiar de El Carmen	Low	Low	2	5
117108	Hospital Comunitario de Salud Familiar Dr. Eduardo Contreras Trabucco de Coelemu	Low	Low	2	5
118100	Hospital Clinico Regional Dr. Guillermo Grant Benavente (Concepcion)	Low	Low	2	1
118103	Hospital Traumatologico (Concepcion)	Low	Low	2	2
118105	Hospital San Jose (Coronel)	Low	Low	2	3
118106	Hospital de Lota	Low	Low	2	5
118107	Hospital Clorinda Avello (Santa Juana)	Low	Low	2	7
118108	Hospital San Agustin de Florida	Low	Low	2	7
119100	Hospital Las Higueras (Talcahuano)	Low	Low	2	2
119101	Hospital de Tome	Low	Low	2	7
119102	Hospital Penco - Lirquen	Low	Low	2	7
120101	Complejo Asistencial Dr. Victor Rios Ruiz (Los angeles)	Low	Low	2	7
120102	Hospital Comunitario de Mulchen	Low	Low	2	7
120103	Hospital Comunitario de Nacimiento	Low	Low	2	7
120104	Hospital Comunitario de Yumbel	Low	Low	2	7
120105	Hospital Comunitario de Laja	Low	Low	2	7
120106	Hospital Comunitario de Santa Barbara	Low	Low	2	7
120107	Hospital Comunitario Dr. Roberto Munoz Urrutia de Huepil	Low	Low	2	7
121109	Hospital Dr. Hernan Henriquez Aravena (Temuco)	Low	Low	2	7

121110	Hospital Dr. Abraham Godoy (Lautaro)	Low	Low	2	7
121111	Hospital de Galvarino	Low	Low	2	7
121112	Hospital de Vilcun	Low	Low	2	7
121113	Hospital Dr. Eduardo Gonzalez Galeno (Cunco)	Low	Low	2	7
121114	Hospital Intercultural de Nueva Imperial	Low	Low	2	7
121115	Hospital de Carahue	Low	Low	2	7
121116	Hospital Dr. Arturo Hillerns Larranaga (Saavedra)	Low	Low	2	7
121117	Hospital de Pitruftuen	Low	Low	2	7
121118	Hospital de Tolten	Low	Low	2	7
121119	Hospital de Gorbea	Low	Low	2	7
121120	Hospital de Loncoche	Low	Low	2	7
121121	Hospital de Villarrica	Low	Low	2	7
121200	Hospital San Francisco (Pucon) (D)	Low	Low	2	7
121201	Hospital Maquehue-Pelal (Padre Las Casas) (D)	Low	Low	2	7
122100	Hospital Clinico Regional (Valdivia)	Low	Low	2	7
122101	Hospital de Corral	Low	Low	2	7
122102	Hospital de Los Lagos	Low	Low	2	7
122103	Hospital de Lanco	Low	Low	2	7
122105	Hospital de Rio Bueno	Low	Low	2	7
122106	Hospital de Paillaco	Low	Low	2	7
122201	Hospital Padre Bernabe de Lucerna (Panguipulli) (D)	Low	Low	2	7
123100	Hospital Base San Jose de Osorno	Low	Low	1	7
123101	Hospital de Purranque	Low	Low	2	7
123102	Hospital de Rio Negro	Low	Low	2	7
123103	Hospital de Puerto Octay	Low	Low	2	7
123104	Hospital Mision San Juan de la Costa	Low	Low	2	7
123105	Hospital del Perpetuo Socorro de Quilacahuin	Low	Low	2	7
124105	Hospital de Puerto Montt	Low	Low	2	7
124110	Hospital de Llanquihue	Low	Low	2	7
124115	Hospital de Frutillar	Low	Low	2	7
124120	Hospital de Fresia	Low	Low	2	7
124125	Hospital de Maullin	Low	Low	2	7
124130	Hospital de Calbuco	Low	Low	2	7
124140	Hospital de Palena	Low	Low	2	7
124145	Hospital de Futaleufu	Low	Low	2	7
125100	Hospital Regional (Coihaique)	Low	Low	2	7
125101	Hospital de Puerto Aysen	Median	Median	2	7
125102	Hospital Dr. Leopoldo Ortega R. (Chile Chico)	Median	Median	2	7
125103	Hospital Lord Cochrane	Median	Psychiatric	2	7
125104	Hospital Dr. Jorge Ibar (Cisnes)	Median	Psychiatric	2	7
126100	Hospital Clinico de Magallanes Dr. Lautaro Navarro Avaria	Median	Median	2	7
126101	Hospital Dr. Augusto Essmann Burgos ( Natales)	Median	Median	2	7
126102	Hospital Dr. Marco Antonio Chamorro ( Porvenir)	Median	Median	2	7
128109	Hospital Provincial Dr. Rafael Avaria (Curanilahue)	Median	Median	2	7
128110	Hospital de Lebu	Median	Psychiatric	2	7
128111	Hospital Intercultural Kallvu Llanka (Canete)	Median	Median	2	7
128112	Hospital de Contulmo	Median	Median	2	7
128113	Hospital San Vicente (Arauco)	Median	Median	2	7
129100	Hospital Dr. Mauricio Heyermann (Angol)	Median	Median	2	2
129101	Hospital de Puren	Median	Median	2	7
129103	Hospital de Collipulli	Median	Median	2	7
129104	Hospital Dr. Dino Stagno M.(Traiguen)	Median	Median	2	7
129106	Hospital San Jose de Victoria	Median	Median	2	7
129107	Hospital Dr. Oscar Hernandez E.(Curacautin)	Median	Median	2	6
129108	Hospital de Lonquimay	Median	Median	2	3
133150	Hospital de Castro	Median	Median	2	2
133155	Hospital de Ancud	Median	Median	2	1
133160	Hospital Comunitario de Achao	Median	Median	2	7
133165	Hospital de Quellon	Median	Median	2	7
133170	Hospital de Queilen	Median	Median	2	5

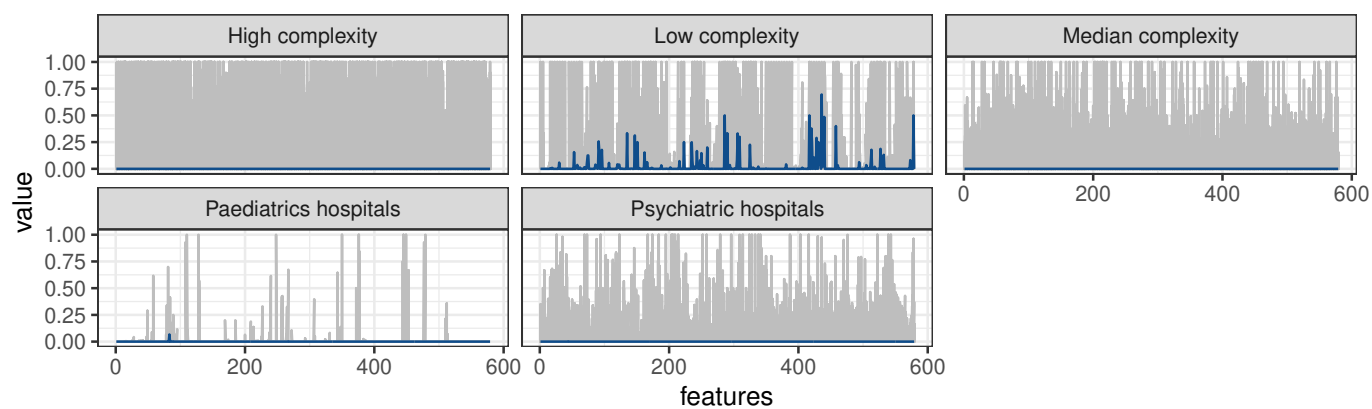


Fig. S1: Magnitude of the healthcare production features collected during the year 2016 grouped according to the modified MINSAL categorisation (Table [II](#)). The median values have been coloured in blue.

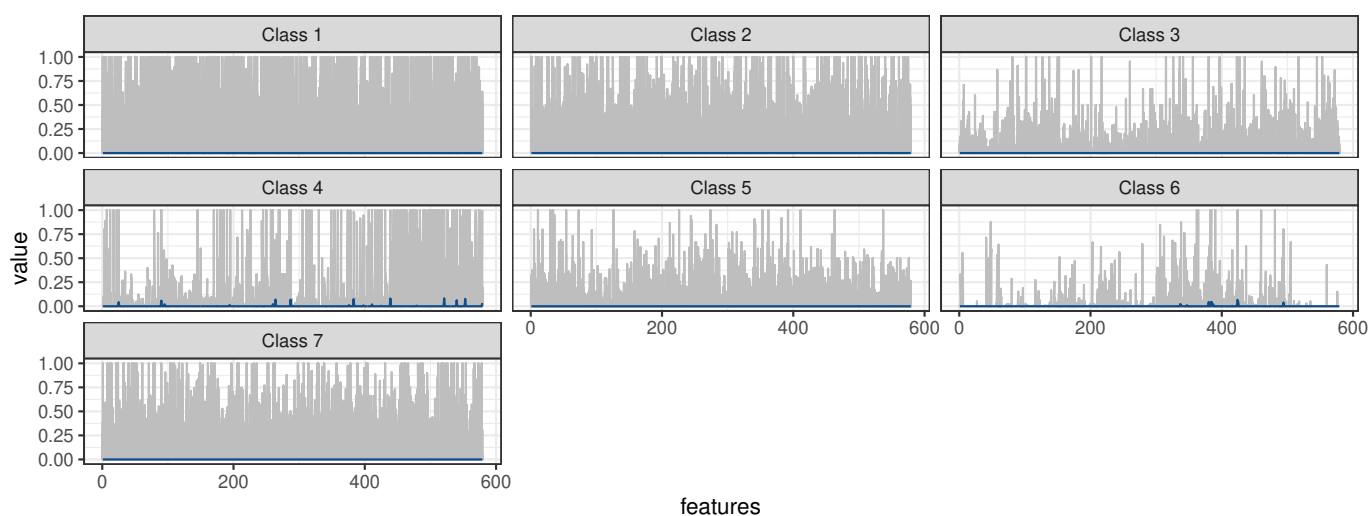


Fig. S2: Magnitude of the healthcare production features collected during the year 2016 grouped according to consensus partition solution based on Pearson's correlation distance. The median values have been coloured in blue.

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**Algorithm 1** Non-dominated Sorting Genetic Algorithm-II

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1: Input:  $D, ps, cr, mr$ 
2: Output: A  $P$  population of partitions (Pareto frontier).
3:  $P \leftarrow initialise\_population(D, ps)$ 
4: while stop condition is not reached do
5:   for each  $p \in P$  do
6:      $Q \leftarrow secondary\_population(P)$ 
7:      $[C_1, C_2] \leftarrow binary\_tournament\_selection(P, Q)$ 
8:      $Q[p] \leftarrow crossover(C_1, C_2, cr)$ 
9:      $Q[p] \leftarrow mutation(Q[p], mr)$ 
10:   end for
11:    $P \leftarrow non\_dominated\_sorting(P, Q, ps)$ 
12: end while
13: return ( $P$ )
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▷ **Initialise population**

▷ **Secondary population**

▷ **Genetic operations**

▷ **Update population  $P$**