

Figura 1: roc curve for the best model

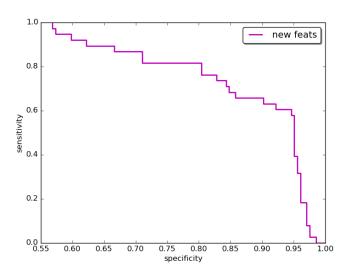


Figura 2: sensibility-specificity curve for the best model

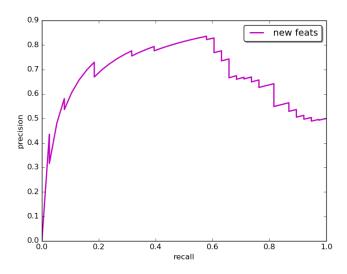


Figura 3: precision-recall curve for the best model  $\,$ 

0.8     0.8     1     0.58     38     143       0.8     0.8     0.60     38     138       0.8     0.8     0.8     3     0.58     38     124       0.8     0.8     0.8     4     0.63     38     115       0.8     0.8     5     0.71     38     94       1.0     0.8     1     0.59     38     141       1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     5 <b>0.72</b> 38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     1     0.59     38     99       2.0     0.8     1     0.58     3 <b>0.72</b> 38     <	upper span age	lower span age	min visits	auc roc score	pos	neg
0.8     0.8     0.8     4     0.63     38     1124       0.8     0.8     0.8     5     0.71     38     94       1.0     0.8     1     0.59     38     141       1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     4     0.53     38     108       1.0     0.8     4     0.53     38     108       1.0     0.8     4     0.53     38     108       2.0     0.8     1     0.59     38     99       2.0     0.8     3     0.72     38     89       2.0     0.8     3     0.72     38     99       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48  <		0.8		0.58		
0.8     0.8     4     0.63     38     115       0.8     0.8     5     0.71     38     94       1.0     0.8     1     0.59     38     141       1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     4     0.53     38     108       1.0     0.8     5     0.72     38     88       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     99       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     133       0.8     1.0 <td>0.8</td> <td>0.8</td> <td>2</td> <td>0.60</td> <td>38</td> <td>138</td>	0.8	0.8	2	0.60	38	138
0.8     0.8     5     0.71     38     94       1.0     0.8     1     0.59     38     141       1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     5 <b>0.72</b> 38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3 <b>0.72</b> 38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     133       0.8     1.0     2     0.54     38     133       0.8     1.0<	0.8	0.8	3	0.58	38	124
1.0     0.8     1     0.59     38     141       1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       2.0     0.8     5     0.72     38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     4     0.58     38     70       2.0     0.8     1.0     1     0.55     38     138       0.8     1.0     1     0.55     38     132       0.8     1.0     4     0.56     38     144       0.8 <td>0.8</td> <td>0.8</td> <td>4</td> <td>0.63</td> <td>38</td> <td>115</td>	0.8	0.8	4	0.63	38	115
1.0     0.8     2     0.56     38     133       1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     5     0.72     38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     4     0.58     38     70       2.0     0.8     1.0     1     0.55     38     138       0.8     1.0     1     0.55     38     133       0.8     1.0     2     0.54     38     133       0.8     1.0     4     0.56     38     114       0.8     1.0     1     0.53     38     134       1.0 <td>0.8</td> <td>0.8</td> <td>5</td> <td>0.71</td> <td>38</td> <td>94</td>	0.8	0.8	5	0.71	38	94
1.0     0.8     3     0.60     38     121       1.0     0.8     4     0.53     38     108       1.0     0.8     5     0.72     38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     133       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     112       0.8     1.0     4     0.56     38     114       0.8     1.0     1     0.53     38     127       1.0     1.0 <td>1.0</td> <td>0.8</td> <td>1</td> <td>0.59</td> <td>38</td> <td>141</td>	1.0	0.8	1	0.59	38	141
1.0     0.8     4     0.53     38     108       1.0     0.8     5     0.72     38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     4     0.53     38     114       0.8     1.0     1     0.53     38     114       1.0     1.0 <td>1.0</td> <td>0.8</td> <td>2</td> <td>0.56</td> <td>38</td> <td>133</td>	1.0	0.8	2	0.56	38	133
1.0     0.8     5     0.72     38     88       2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     5     0.69     38     93       1.0     1.0     1     0.53     38     134       1.0     1.0     2     0.54     38     127       1.0     1.0     3     0.53     38     118       1.0     1.0 <td>1.0</td> <td>0.8</td> <td>3</td> <td>0.60</td> <td>38</td> <td>121</td>	1.0	0.8	3	0.60	38	121
2.0     0.8     1     0.59     38     99       2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     1     0.55     38     133       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     5     0.69     38     93       1.0     1.0     1     0.53     38     134       1.0     1.0     2     0.54     38     127       1.0     1.0     3     0.53     38     118       1.0     1.0 <td>1.0</td> <td>0.8</td> <td>4</td> <td>0.53</td> <td>38</td> <td>108</td>	1.0	0.8	4	0.53	38	108
2.0     0.8     2     0.61     38     97       2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     4     0.56     38     134       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     134       1.0     1.0     3     0.53     38     117       1.0     1.0     4     0.57     38     107       1.0     1.0<	1.0	0.8	5	0.72	38	88
2.0     0.8     3     0.72     38     90       2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     132       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     4     0.56     38     114       0.8     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     114       1.0     1.0     1     0.53     38     118       1.0     1.0     3     0.53     38     118       1.0     1.0     4     0.57     38     107       1.0     1.0	2.0	0.8	1	0.59	38	99
2.0     0.8     4     0.58     38     70       2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     5     0.69     38     93       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     134       1.0     1.0     2     0.54     38     127       1.0     1.0     3     0.53     38     118       1.0     1.0     4     0.57     38     107       1.0     1.0     4     0.57     38     107       1.0     1.0     1     0.60     38     89       2.0     1.0<	2.0	0.8	2	0.61	38	97
2.0     0.8     5     0.70     38     48       0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     5     0.69     38     93       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     127       1.0     1.0     2     0.54     38     127       1.0     1.0     3     0.53     38     118       1.0     1.0     3     0.53     38     118       1.0     1.0     4     0.57     38     107       1.0     1.0     4     0.57     38     107       1.0     1.0     1     0.60     38     89       2.0     1.0	2.0	0.8	3	0.72	38	90
0.8     1.0     1     0.55     38     138       0.8     1.0     2     0.54     38     133       0.8     1.0     3     0.55     38     122       0.8     1.0     4     0.56     38     114       0.8     1.0     5     0.69     38     93       1.0     1.0     1     0.53     38     134       1.0     1.0     1     0.53     38     118       1.0     1.0     2     0.54     38     127       1.0     1.0     3     0.53     38     118       1.0     1.0     4     0.57     38     107       1.0     1.0     4     0.57     38     107       1.0     1.0     5     0.68     38     87       2.0     1.0     1     0.60     38     89       2.0     1.0     2     0.59     38     87       2.0     1.0<	2.0	0.8	4	0.58	38	70
0.8   1.0   2   0.54   38   133     0.8   1.0   3   0.55   38   122     0.8   1.0   4   0.56   38   114     0.8   1.0   5   0.69   38   93     1.0   1.0   1   0.53   38   134     1.0   1.0   1   0.53   38   118     1.0   1.0   2   0.54   38   127     1.0   1.0   3   0.53   38   118     1.0   1.0   4   0.57   38   107     1.0   1.0   4   0.57   38   107     1.0   1.0   5   0.68   38   87     2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0	2.0	0.8	5	0.70	38	48
0.8   1.0   3   0.55   38   122     0.8   1.0   4   0.56   38   114     0.8   1.0   5   0.69   38   93     1.0   1.0   1   0.53   38   134     1.0   1.0   1   0.53   38   127     1.0   1.0   2   0.54   38   127     1.0   1.0   3   0.53   38   118     1.0   1.0   4   0.57   38   107     1.0   1.0   4   0.57   38   107     1.0   1.0   5   0.68   38   87     2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.	0.8	1.0	1	0.55	38	138
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.8	1.0	2	0.54	38	133
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.8	1.0	3	0.55	38	122
1.0   1.0   1   0.53   38   134     1.0   1.0   2   0.54   38   127     1.0   1.0   3   0.53   38   118     1.0   1.0   4   0.57   38   107     1.0   1.0   4   0.57   38   107     1.0   1.0   5   0.68   38   87     2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   89     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   91     0.8   2.0   4   0.57<	0.8	1.0	4	0.56	38	114
1.0   1.0   2   0.54   38   127     1.0   1.0   3   0.53   38   118     1.0   1.0   4   0.57   38   107     1.0   1.0   5   0.68   38   87     2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   91     0.8   2.0   4   0.57   38   91     0.8   2.0   4   0.57   38   81     1.0   2.0   1   0.59 <td>0.8</td> <td>1.0</td> <td>5</td> <td>0.69</td> <td>38</td> <td>93</td>	0.8	1.0	5	0.69	38	93
1.0   1.0   3   0.53   38   118     1.0   1.0   4   0.57   38   107     1.0   1.0   5   0.68   38   87     2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   4   0.57   38   91     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   3   0.60 <td>1.0</td> <td>1.0</td> <td>1</td> <td>0.53</td> <td>38</td> <td>134</td>	1.0	1.0	1	0.53	38	134
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.0	1.0	2	0.54	38	127
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.0	1.0	3	0.53	38	118
2.0   1.0   1   0.60   38   89     2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   3   0.57   38   91     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   2   0.53   38   86     1.0   2.0   3   0.60   38   85     1.0   2.0   4   0.50   38   84     1.0   2.0   5   0.67	1.0	1.0	4	0.57	38	107
2.0   1.0   2   0.59   38   87     2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   4   0.57   38   91     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   2   0.53   38   86     1.0   2.0   3   0.60   38   85     1.0   2.0   4   0.50   38   84     1.0   2.0   5   0.67   38   74     2.0   2.0   2   0.63	1.0	1.0	5	0.68	38	87
2.0   1.0   3   0.60   38   83     2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   4   0.57   38   91     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   2   0.53   38   86     1.0   2.0   3   0.60   38   85     1.0   2.0   4   0.50   38   84     1.0   2.0   5   0.67   38   74     2.0   2.0   2   0.63   38   45     2.0   2.0   3   0.63	2.0	1.0	1	0.60	38	89
2.0   1.0   4   0.64   38   67     2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   2   0.53   38   86     1.0   2.0   3   0.60   38   85     1.0   2.0   3   0.60   38   85     1.0   2.0   4   0.50   38   84     1.0   2.0   5   0.67   38   74     2.0   2.0   1   0.66   38   45     2.0   2.0   2   0.63   38   44     2.0   2.0   3   0.63	2.0	1.0	2	0.59	38	87
2.0   1.0   5   0.69   38   48     0.8   2.0   1   0.57   38   97     0.8   2.0   2   0.62   38   95     0.8   2.0   3   0.57   38   92     0.8   2.0   4   0.57   38   91     0.8   2.0   5   0.60   38   83     1.0   2.0   1   0.59   38   88     1.0   2.0   2   0.53   38   86     1.0   2.0   3   0.60   38   85     1.0   2.0   3   0.60   38   85     1.0   2.0   4   0.50   38   84     1.0   2.0   5   0.67   38   74     2.0   2.0   1   0.66   38   45     2.0   2.0   2   0.63   38   44     2.0   2.0   3   0.63   38   44     2.0   2.0   3   0.63	2.0	1.0	3	0.60	38	83
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2.0	1.0	4	0.64	38	67
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2.0	1.0	5	0.69	38	48
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.8	2.0	1	0.57	38	97
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.8	2.0	2	0.62	38	95
0.8 2.0 5 0.60 38 83   1.0 2.0 1 0.59 38 88   1.0 2.0 2 0.53 38 86   1.0 2.0 3 0.60 38 85   1.0 2.0 4 0.50 38 84   1.0 2.0 5 0.67 38 74   2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	0.8	2.0	3	0.57	38	92
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.8	2.0	4	0.57	38	91
1.0 2.0 2 0.53 38 86   1.0 2.0 3 0.60 38 85   1.0 2.0 4 0.50 38 84   1.0 2.0 5 0.67 38 74   2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	0.8	2.0	5	0.60	38	83
1.0 2.0 3 0.60 38 85   1.0 2.0 4 0.50 38 84   1.0 2.0 5 0.67 38 74   2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	1.0	2.0	1	0.59	38	88
1.0 2.0 4 0.50 38 84   1.0 2.0 5 0.67 38 74   2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	1.0	2.0	2	0.53	38	86
1.0 2.0 5 0.67 38 74   2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	1.0	2.0	3	0.60	38	85
2.0 2.0 1 0.66 38 45   2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	1.0	2.0	4	0.50	38	84
2.0 2.0 2 0.63 38 44   2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	1.0	2.0	5	0.67	38	74
2.0 2.0 3 0.63 38 43   2.0 2.0 4 0.56 38 41	2.0	2.0		0.66	38	45
2.0 2.0 4 0.56 38 41	2.0	2.0		0.63	38	44
	2.0	2.0	3	0.63	38	43
2.0 2.0 5 0.59 38 35	2.0	2.0	4	0.56	38	41
	2.0	2.0	5	0.59	38	35

Tabella 1: AUC ROC score for different training sets. Best score in bold.  $\ensuremath{\mathbf{3}}$