**Supplemental Digital Content 3** - Physiologic waveform feature extraction \*

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| **Physiologic waveform signal** | **Signal processing method** | **Features extracted** | **Taut string є values\*** |
| Electrocardiogram (ECG) Lead II, 240 Hz sampling rate | Peak detection and taut string estimation of heart rate variability | 6 features:* Number of line segments per heartbeat
* Number of inflection segments per heartbeat
* Total variation of noise per heartbeat
* Total variation of denoised signal per heartbeat
* Power of denoised signal
* Power of noise
 | 0.00100.02580.05050.07530.1000 |
| Peak detection and taut string estimation | (same as row above, 6 features) | 0.01000.15750.30500.45250.6000 |
| Dual-tree complex wavelet packet transform of taut string estimation | 19 features per filter bank (2k) per wavelet transform (2), 152 total:* Standard deviation
* Shannon entropy
* Log energy entropy
* Energy
* Power
* Minimum
* Mean
* Maximum
* Median of largest 16
* Range
* Mean gradient
* Kurtosis
* Skewness
* Complexity
* Mobility
* Log of variance of probability distribution
* Mean value of amplitude of fast Fourier transform
* Sum of auto-correlation sequence
* Mean value of cross-covariance
 | *N/A;* (k = 2) |
| Arterial blood pressure (ABP), 120 Hz sampling rate | Peak detection and taut string estimation | 21 features:* Total number of peaks (1)
* Time interval between consecutive systolic peaks: minimum, median, mean, maximum, standard deviation (5)
* Time interval between systolic peak and subsequent diastolic peak: minimum, median, mean, maximum, standard deviation (5)
* Standard deviation of relative amplitude between consecutive systolic peaks: minimum, median, mean, maximum, standard deviation (5)
* Standard deviation of relative amplitude between systolic peak and subsequent diastolic peak: minimum, median, mean, maximum, standard deviation (5)
 | 0.10.71.31.92.5 |
| Pulse plethysmography (SpO2), 60 Hz sampling rate | Peak detection and taut string estimation | (same as row above, 21 features) | 18.7516.524.2532 |

*\* Methods described in further detail in:*

Hernandez L, Kim R, Tokcan N, Derksen H, Biesterveld BE, Croteau A, Williams AM, Mathis M, Najarian K, Gryak J. Multimodal tensor-based method for integrative and continuous patient monitoring during postoperative cardiac care. Artif Intell Med 2021;113:102032.