**SUPPLEMENTARY MATERIAL**

**FOR**

**Clinical relevance of home monitoring of vital signs and blood glucose levels: A narrative review**

Home monitoring of vital signs and blood glucose

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**Supplement 1:**

**Appendix: Search strategy for Clinical relevance of home monitoring of vital signs and blood glucose levels – A narrative review**

Performed by Michelle Cheng, May 31, 2018

**Databases**

Medline, Embase, and Compendex

**Search Strategy**

Search terms and parameters for Medline:

1. exp Aged/
2. (older adult\* or senior\* or elder\* or geriatric\* or aged or aging).tw,kf.
3. 1 or 2
4. exp vital signs/ or blood glucose/
5. (vital sign\* or pulse or pulse rate or body temperature or blood glucose or blood sugar or blood oxygen).kf,tw.
6. 4 or 5
7. exp monitoring, ambulatory/ or telemetry/ or Blood Glucose Self-Monitoring/
8. (device\* or technolog\* or wearable\* or context aware or monitor\* or track\* or sens\*).tw,kf.
9. 7 or 8
10. exp outpatients/ or independent living/ or ambulatory care/
11. (community dwelling or home or outpatient\* or assisted living).tw,kf.
12. 10 or 11
13. 3 and 6 and 9 and 12
14. limit 13 to last 5 years

Search terms and parameters for Embase:

1. exp vital sign/
2. exp glucose blood level/
3. (vital sign\* or pulse or pulse rate or body temperature or blood glucose or blood sugar or blood oxygen).kw,tw.
4. 1 or 2 or 3
5. blood glucose monitoring/ or exp ambulatory monitoring/
6. telemetry/
7. (device\* or technolog\* or wearable\* or context aware or monitor\* or track\* or sens\*).tw,kw.
8. 5 or 6 or 7
9. aged/
10. (older adult\* or senior\* or elder\* or geriatric\* or aged or aging).tw,kw.
11. 9 or 10
12. outpatient/
13. exp independent living/
14. (community dwelling or home or outpatient\* or assisted living).tw,kw.
15. 12 or 13 or 14
16. 4 and 8 and 11 and 15
17. limit 16 to last 5 years

Search terms and parameters for Compendex:

1. "vital sign\*" or "blood glucose" or pulse or "pulse rate" or "body temperature" or "blood sugar" or "blood oxygen"
2. ambulatory or device\* or technolog\* or wearable\* or “context aware” or monitor\* or track\* or sens\* or “wearable sensor\*” or “patient monitoring”
3. outpatient\* or "independent living" or "ambulatory care" or "community dwelling" or " home" or "communit\*"
4. 1 and 2 and 3
5. Limit from 2012 to 2017

**Total:**

The following results were obtained:

Medline (n=762) + Embase (n=642) + Compendex (n=574) = 1,978

**Supplement 2:**

Supplementary Table 1. Frequency table of the publication types extracted from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Publication Type  y* | *Frequency  f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| Full Text | 182 | 0.87 | 87 |
| Conventional Abstract | 9 | 0.04 | 4.3 |
| Extended Abstract | 18 | 0.09 | 8.6 |
|  | 209 |  |  |

Supplementary Table 2. Frequency table of the participant populations extracted from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Participant Population y* | *Frequency  f* | *Relative frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Humans | 3 | 0.01 | 1.4 |
| Older Adults Only (≥ 60) | 46 | 0.22 | 22 |
| Young Adults (18-59) | 10 | 0.05 | 4.8 |
| Both Young and Old Adults | 144 | 0.69 | 69 |
| Not Specified | 6 | 0.03 | 2.9 |
|  | 209 |  |  |

Supplementary Table 3. Frequency table of the settings extracted from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Setting y* | *Frequency  f* | *Relative frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| Home or Independent | 142 | 0.68 | 68 |
| Non-home/Non-independent | 67 | 0.32 | 32 |
|  | 209 |  |  |

Supplementary Table 4. Frequency table of the vital signs and blood glucose extracted from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Vital Sign Measured y* | *Frequency  f* | *Relative frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| Temperature | 8 | 0.03 | 2.9 |
| Pulse | 71 | 0.25 | 25 |
| Respiratory Rate | 30 | 0.11 | 11 |
| Blood Pressure | 142 | 0.51 | 51 |
| Blood Glucose | 29 | 0.10 | 10 |
|  | 280\* |  |  |

\*55 of the included articles in the review discussed more than one vital sign

Supplementary Table 5. Frequency table of the method of vital sign and blood glucose measurement from included articles†.

|  |  |  |  |
| --- | --- | --- | --- |
| *Device  y* | *Frequency  f* | *Relative frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| Microlife | 13 | 0.06 | 6.4 |
| Omron | 52 | 0.26 | 26 |
| Spacelabs | 23 | 0.11 | 11 |
| Miscellaneous | 114 | 0.56 | 56 |
|  | 202\* |  |  |

†only articles (n=172) that named a particular device used for vital sign or blood glucose measurement are shown in the table and of these articles, 28 of the included articles in the review discussed more than one measurement device

Supplementary Table 6. Frequency table of the author statement of validity from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Author Statement of Validation y* | *Frequency  f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 89 | 0.43 | 43 |
| Statement Not Defended | 25 | 0.12 | 12 |
| Statement and Cited | 39 | 0.19 | 19 |
| Statement and Tested | 37 | 0.18 | 18 |
| Statement, Tested, and Cited | 19 | 0.09 | 9.1 |
|  | 209 |  |  |

Supplementary Table 6.1. Frequency table of the validity of study where there were no human participants.

|  |  |  |  |
| --- | --- | --- | --- |
| *Validity of Study  y* | *Frequency*  *f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 2 | 0.67 | 67 |
| Statement, Tested, and Cited | 1 | 0.33 | 33 |
|  | 3 |  |  |

Supplementary Table 6.2. Frequency table of the validity of study for older adults (≥ 60) only.

|  |  |  |  |
| --- | --- | --- | --- |
| *Validity of Study*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 25 | 0.54 | 54 |
| Statement Not Defended | 3 | 0.07 | 6.5 |
| Statement and Cited | 7 | 0.15 | 15 |
| Statement and Tested | 4 | 0.09 | 8.7 |
| Statement, Tested, and Cited | 7 | 0.15 | 15 |
|  | 46 |  |  |

Supplementary Table 6.3. Frequency table of the validity of study for young adults (18-59) only.

|  |  |  |  |
| --- | --- | --- | --- |
| *Validity of Study*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 1 | 0.10 | 10 |
| Statement and Cited | 1 | 0.10 | 10 |
| Statement and Tested | 7 | 0.70 | 70 |
| Statement, Tested, and Cited | 1 | 0.10 | 10 |
|  | 10 |  |  |

Supplementary Table 6.4. Frequency table of the validity of study for both young (18-59) and older adults (≥ 60).

|  |  |  |  |
| --- | --- | --- | --- |
| *Validity of Study*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 59 | 0.41 | 41 |
| Statement Not Defended | 20 | 0.14 | 14 |
| Statement and Cited | 31 | 0.22 | 22 |
| Statement and Tested | 24 | 0.17 | 17 |
| Statement, Tested, and Cited | 10 | 0.07 | 6.9 |
|  | 144 |  |  |

Supplementary Table 6.5. Frequency table of the validity of study where participants are not specified.

|  |  |  |  |
| --- | --- | --- | --- |
| *Validity of Study  y* | *Frequency  f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Claim | 2 | 0.33 | 33 |
| Statement Not Defended | 2 | 0.33 | 33 |
| Statement and Tested | 2 | 0.33 | 33 |
|  | 6 |  |  |

Supplementary Table 7. Frequency table of the method of validation from included articles.

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 128 | 0.61 | 61 |
| Method Described | 50 | 0.24 | 24 |
| Method Described and Cited | 18 | 0.09 | 8.6 |
| Third Party Tested | 3 | 0.01 | 1.4 |
| Third Party Cited | 10 | 0.05 | 4.8 |
|  | 209 |  |  |

Supplementary Table 7.1 Frequency table of the method of validation where there were no human participants.

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation  y* | *Frequency  f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 1 | 0.33 | 33 |
| Method Described | 1 | 0.33 | 33 |
| Third Party Tested | 1 | 0.33 | 33 |
|  | 3 |  |  |

Supplementary Table 7.2 Frequency table of the method of validation for older adults (≥ 60) only.

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 29 | 0.63 | 63 |
| Method Described | 9 | 0.20 | 20 |
| Method Described and Cited | 5 | 0.11 | 11 |
| Third Party Tested | 1 | 0.02 | 2.2 |
| Third Party Cited | 2 | 0.04 | 4.3 |
|  | 46 |  |  |

Supplementary Table 7.3 Frequency table of the method of validation for young adults (18-59) only.

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation  y* | *Frequency  f* | *Relative Frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 2 | 0.20 | 20 |
| Method Described | 7 | 0.70 | 70 |
| Method Described and Cited | 1 | 0.10 | 10 |
|  | 10 |  |  |

Supplementary Table 7.4 Frequency table of the method of validation for both young (18-59) and older adults (≥ 60).

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation*  *y* | *Frequency*  *f* | *Relative Frequency  rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 94 | 0.65 | 65 |
| Method Described | 29 | 0.20 | 20 |
| Method Described and Cited | 12 | 0.08 | 8.3 |
| Third Party Tested | 1 | 0.01 | 1.0 |
| Third Party Cited | 8 | 0.06 | 5.6 |
|  | 144 |  |  |

Supplementary Table 7.5 Frequency table of the method of validation where participants are not specified.

|  |  |  |  |
| --- | --- | --- | --- |
| *Method of Validation y* | *Frequency  f* | *Relative frequency rf=f/n* | *Percentage Frequency  p=100\*rf* |
| No Method | 2 | 0.33 | 33 |
| Method Described | 4 | 0.67 | 67 |
|  | 6 |  |  |