ASPREX Fact Sheet

Fall detector

Body worn device detecting a user's fall and triggering an alert to someone who can help. Product features include a detector (which can be worn on the wrist or as a necklace or a belt), automatic detection of falls (sensor detects if person falls from upright position), automatic sending of alert to caregivers or emergency service, manual alert triggering false alarms can be cancelled , notification that an alert has been sent (notification can be an LED on device) and low battery notification. Possible variants include waterproofness and inclusion of a two-way intercom.

- Product Classification
  - APL (WHO Assistive Product Priority List): 13 (Fall detectors)
  - ISO 9999:2022: 222906 (Personal emergency alarm systems)
- Possible configuration variants
  - Gravity sensing fall detector.
  - Capability to transmit alerts over landline or cellular phone.
- Possible accessories or optional components
  - Compatibility with various alarm systems.
  - Compatibility with smartphones.
  - Waterproofness.
  - Inclusion of a two-way intercom.
- Product goals

  Activities or functions the product is mainly intended to support, according to WHO ICF Classification:
  - Using communication devices and techniques [d360].
  - Changing body position [d410].
  - Walking [d450].
  - Transferring oneself [d420].
- Indicated impairments

  Difficulties the product is mainly intended to address, according to the WHO ICF Classification:
  - Consciousness functions [b110]. *Only if used with variants: Gravity sensing fall detector*
  - Vestibular functions [b235].
  - Speaking [d330].
  - Using communication devices and techniques [d360].
- Contraindicated impairments

  Difficulties for which the product may be inappropriate:
  - Incapability of living independently, with or without accommodations.
- Indicated environments

  Specific environments in which the product should be used:
  - Indoors.
  - Outdoors. *Only if used with variants: Capability to transmit alerts over the phone, waterproofness*
- Contraindicated environments

  Environments in which the product may be inappropriate:
  - Areas where the device is out of range of the hub which transmits alerts to a monitoring center or caregiver.
- Other indicated factors

Other factors or situations the product is intended to address:

- Conditions making someone prone to falls (such as epilepsy, diabetes, or Parkinson's disease).
- Having had a fall in the past months or feeling at risk of falls.

- Other contraindicated factors

Other factors or situations in which the product may be inappropriate:
None specified.

- Points to be considered in product selection
  - While some fall detectors will send a message automatically, there is also the capability of communicating with a caregiver and/or emergency service.
  - Fall detectors use various kinds of sensors to detect a fall from a standing position; these sensors include gravity sensor technology with appropriate algorithms, inertia sensors and accelerometers.
  - The fall alert is a communication device that will send a message to a pre-selected caregiver and/or a subscription emergency service.
  - Most devices will communicate with a subscription service that can then alert a public emergency service such as 911 in the USA or 112 in the EU.
  - Some devices will call 911 in the USA automatically.
  - Many devices can send text or programmed messages to phones of family or caregivers including cell phones.
  - There is a possibility of false alarms, i.e. indicating a fall when there is none specified.
  - There is also the possibility of not detecting a fall.
  - The person using a fall alert device should otherwise be capable of living independently with or without accommodations.
  - The person using a fall alert device should be comfortable wearing the device, either on the wrist, around the neck or on a belt.
- Points to be considered in product fitting
  - The device must be set up; this typically includes setting up the alerts so the correct people and caregivers and alerted when necessary.
  - The device must be properly connected to either a landline or cellular phone.
- Points to be considered in product use
  - The person using the device should be trained in the proper use of the device, especially the feature that enables the user to send an alert.
  - The person should be trained in the proper procedures for dealing with false alarms.
- Points to be considered in product maintenance / follow-up
  - Maintaining a good battery life.
  - Sensor should be tested regularly.
- Examples of products available on the market
  - Live product search in the EASTIN website https://www.eastin.eu/en/searches/products/list?iso=222906

Source

This Fact Sheet was compiled in 2021 by an international team of experts, to provide the initial knowledge base for a project ("An online system to assist the selection of assistive product") supported by the World Health Organization in 2020-2021 within the GATE Initiative (Global collaboration on Assistive Product). Fact Sheets were compiled for each of the 50 types of products included in the WHO APL (Assistive Product Priority List).

The team was composed of Renzo Andrich (Italy, group leader), Natasha Layton (Australia), Stefan von Prondzinski (Italy), Jerry Weisman (USA), Silvana Contepomi (Argentina) and Hasan Minto (Pakistan).

The project led to a prototype online tool called ASPREX (ASsistive PRoduct EXplorer). At the end of the project, it was transferred to a WHO collaborating center (the Global Disability Hub in the UK), in view of possible future developments.