Refresh and retrain

Provide opportunities for learners to maintain their knowledge and skills after completing an initial first aid education session.

“Refresh” refers to strengthening or reminding learners of first aid knowledge and skills, while “retrain” addresses re-learning skills that they may have forgotten after the initial educational experience. Methods can include face-to-face, online (either for Adults or Children), Video learning, or a combination (see Blended learning). A refresh and retrain strategy supports all learners in maintaining their first aid knowledge and skills over time. Programme designers should use the evidence of knowledge and skill deterioration as a way to encourage individuals to regularly engage with first aid learning.

Guidelines

- Knowledge and skill abilities decline dramatically in the months following an initial first aid education session. Refresh and retrain strategies should be considered to maintain first aid learning outcomes. **
- All methods reviewed in the Scientific foundation section (video learning, feedback devices, face-to-face learning, etc.) may be considered as appropriate refresh and retrain methods. *
- Refresh and retrain sessions may be delivered between three to six months after the initial educational experience. Waiting longer will lead to less effective learning. *
- While there is no recommended session length, refresh and retrain interventions of 45-minutes or less could be valuable. *

Good practice points

- Programme designers should work with different learner groups to establish the most appropriate and feasible refresh and retrain strategy and delivery method.
• First aid volunteers should also take refresh and retrain sessions to ensure their knowledge and skills are up to date.

Guideline classifications explained

Chain of survival behaviours

Refresh and retrain methods can be applied to all domains of the Chain of survival behaviours. For example, evidence showed that technical aspects, such as correct compression depth and rate, improve with practice and quickly worsen without it. Refresh and retrain methods also build confidence and a willingness to act, helping learners to achieve the desired outcomes within each of the domains successfully.

Education considerations

Context considerations

• Consider your organisational and national requirements for refresh and retrain sessions, specifically concerning required qualifications and the process of issuing certifications.
• If using technology to deliver refresh and retrain sessions, access to the necessary equipment may be a barrier in some areas. Still, technology offers the opportunity to reach more people especially with off-line technology, and depending on the learners, may provide more accessibility to learn first aid.
• If facilitating face-to-face sessions, consider the distance that learners will have to travel and plan accordingly.

Learner considerations

• Each learner group will require a different approach to refresh and retain depending on how often they use first aid and their ability to remember and apply it. Programme designers should also take into consideration learners’ level of responsibility. For example, a schoolteacher might need to refresh their knowledge of first aid for children more often than someone who works...
from a home office.
  • Consider the cost to learners (time and money) as well as their preferences, availability, access to technology, and motivation when selecting a refresh and retrain strategy.

**Facilitation tips**

  • Plan to provide refresh and retrain opportunities three to six months after the initial education session to improve retention. (However, evidence does suggest that a decline in knowledge is reversible after a year.)
  • Identify easy and appealing ways for learners to access first aid information and help them to understand the importance of keeping their knowledge and skills up to date.
  • Ask learners for the best way to contact them so they can receive reminders to update their first aid knowledge and skills.
  • Consider using peer-to-peer contact through social media to share first aid updates.

**Facilitation tools**

  • There is little evidence to suggest the most suitable method for implementing a refresh and retrain strategy. However, posters, pamphlets, flashcards, video lectures, feedback devices and videos or animations viewed on mobile phones may effectively improve knowledge and skill retention.
  • Digital methods used to deliver refresh and retrain sessions can be scaled and made available to meet the needs of the learner. For example, sending periodic text messages or emails with first aid tips to refresh learners’ knowledge.
  • Face-to-face learning is a moderately effective method to support knowledge and skill retention.
  • Suggest learners use free first aid apps to refresh and update their knowledge.
  • Use common board or card games as a fun way to establish the knowledge or skills learners need to refresh (see Gamification).

**Benefits and limitations**
Developing refresh and retrain interventions might be costly, regardless of the delivery method. Alternatively, they might also offer opportunities for cheaper, shorter sessions that ensure learners retain their skills over a longer period, benefiting them and their community.

Learners may feel they do not need to take a refresh and retrain session. The more time between initial learning and the refresh and retrain intervention, the more challenging it may be to persuade individuals to develop their first aid knowledge and skills (Sato et al., 2019). Conversely, learners may prefer to receive regular opportunities if this means they do not have to attend longer courses as often.

Scientific foundation

We included eight in this evidence review. All shared the same conclusion that refreshing or retraining first aid education after the initial session can have a positive effect on knowledge and skill retention, compared to no additional learning opportunity. However, there is little consensus regarding the most effective delivery method nor how often refresh and retrain sessions should be conducted.

The evidence we reviewed assesses how the following methods impact first aid providers’ knowledge and skill retention: videos and animations viewed on mobile phones, video lectures, computer-based feedback devices, as well as a combination of these methods.

Mobile phone videos

Two studies explored using videos sent to mobile phones as a refresh and retrain delivery method, as well as the impact the videos had on knowledge and skill retention. Choa et al. (2009) conducted a single-blinded randomised controlled trial where the intervention group watched a short CPR animation on their phones before completing a CPR test. The control group did not watch it. The intervention group had statistically significant improvements compared to the control group.

In a case-control study by Ahn et al. (2001), the intervention group viewed a video on their mobile phones three months after initially receiving first aid education.
The intervention group’s skills, confidence and willingness to act all improved compared to the control group who did not watch the video.

**Video training**

Hsieh et al. (2018) conducted a randomised controlled trial to assess the impact of a video lecture three, six, and 12 months after receiving initial first aid education. All participants in the intervention group (who watched the video) had improved knowledge and skill retention after 12 months, compared to those who did not watch the video. (See the section below on Frequency of refresh and retraining.)

Nishiyama, Iwami, Murakami, et al. (2015) used a simulated randomised controlled trial to assess the long-term effectiveness of a 15-minute basic refresh video on life support. Participants watched the video six months after completing a 45-minute CPR training session. The intervention group had improved knowledge and skills compared to the control group. The study concluded that a short video might be an effective method to refresh and retrain CPR learning outcomes.

**Practical and computer-delivered feedback**

Several studies explored the impact of using Feedback devices, such as computers or automated CPR manikins, as a refresh and retrain delivery method. Nishiyama, Shimamoto, Kiyohara, et al. (2017) used a randomised controlled trial to assess the effects of a one-minute refresher practice on a manikin, delivered three months after an initial 45-minute CPR training session. The intervention group showed statistically significant improvements in their total number of chest compressions, as well as how to perform compressions with correct recoil. However, a significant improvement could not be demonstrated between the two groups with regards to the depth of compressions or the time it took participants to start compressions.

Using a randomised controlled simulation study, Sato et al. (2019) assessed the difference between two groups’ CPR skills one year after receiving a 45-minute CPR training. The experimental group completed a five-minute self-led retraining session using a high-fidelity feedback manikin after three or six months. Immediately after the initial training and one year later, all study participants were tested on their resuscitation skills using a scenario simulation. The study suggests
that the self-led refresher could not be demonstrated in the long-term retention of chest compression skills. However, it does suggest that short, frequent self-led retraining sessions may help people with poor CPR skills to enhance their performance of chest compression depth.

A randomised controlled trial study by Wik et al. (2002) evaluated skill retention six months after initial CPR training using a voice advisory manikin that provides immediate feedback to the person performing CPR on the manikin. The study found that using the voice advisory manikin without a facilitator present does not remove the need for a facilitator, nor could it be demonstrated to improve participants’ retention of knowledge and skills. However, the study does suggest that ten, three-minute refresher sessions could serve to enhance retention.

**Face-to-face training**

A randomised controlled trial by Avau et al. (2019) examined the extent refresher courses with different focuses might impact the retention of first aid knowledge and skills after two years. The first refresher course focused on CPR and bleeding knowledge and skills, while the second focused on road safety as well as CPR and fracture treatment. Results showed that attending a refresher course one year later led to better retention of non-resuscitation knowledge (p=0.04). However, there was no effect found on the retention of practical skills for bleeding management. Practical skills for fractures decreased in the group that received refresher training. For CPR, they found that those who took the refresher course had a statistically significant increase in skill retention over time (p=0.23). The study suggests that a refresh and retraining session conducted after one year might modestly improve the retention of non-resuscitation knowledge, as well as resuscitative practical skills.

**Frequency of refresh and retraining**

There is little conclusive comparative evidence to suggest when to deliver a refresh or retraining intervention after the initial learning.

Two studies offered refresh and retraining sessions at different intervals after an initial first aid education session. The studies assessed how the different timings
impacted knowledge and skill retention. In the first study, Hsieh et al. (2018) delivered refresh and retrain sessions for three cohorts; one received retraining every three months, one every six months, and one at 12 months. When learners were tested before the refresh training, they found that in each interval group and control sub-group, the following percentages passed the skills test:

- 100% of the three-month cohort passed
- 95% of the six-month cohort passed
- 19% of the 12-month cohort passed (p<0.001).

Knowledge retention saw similar results. At one year after the initial training, in a knowledge test out of 20 marks, the three-month cohort scored a mean of 18, the six-month cohort scored 16 and the 12-month cohort scored 12 (p<0.001). All three groups had similar outcomes when using a defibrillator as well. The results suggested that every three months is the optimal interval to provide refresh and retrain sessions, or every six months for low-resource areas.

Conversely, Sato et al. (2019) found that after three and six months, refresh and retrain sessions had little effect on the retention of knowledge and skills. After one year, the difference could not be demonstrated between the three- or six-month group in regard to resuscitation skills. However, both interval intervention cohorts improved over the control. Both interval cohorts also improved in their performance of chest compressions compared to the control group. Ultimately, the study could not conclusively recommend which interval was more effective to provide refresh and retrain sessions. The results do, however, suggest that short, frequent self-led retraining sessions might be useful in improving chest compression skills for people with poor skills.

In summary

- Studies showed a significant decline in the retention of CPR skills within a short period after initial learning took place (three to six months).
- There was little comparative evidence to suggest that the length of refresh and retrain sessions had any impact on retention.
- From the literature, we observed that the best time to deliver refresh and retrain sessions was as early as three months and no later than one year from...
the initial learning.

- The use of self-learning technology (e.g., videos or voice animated manikins) as a supplemental tool to initial hands-on training showed an increase in learner retention when compared to no technology. However, there was no evidence to suggest the most effective form of technology to improve the retention rate of CPR skills.

Gaps

This topic requires further evidence on the best ways to refresh and retrain, as well as how often to retrain different population groups. The latter will likely depend on how often the group uses first aid.

References


https://doi.org/10.1016/j.resuscitation.2018.05.010

https://doi.org/10.1016/j.resuscitation.2015.02.015

https://doi.org/10.1002/aet2.10034


https://doi.org/10.1016/S0300-9572(01)00476-2
Explore the guidelines

First aid

Explore the first aid recommendations for more than 50 common illnesses and injuries. You’ll also find techniques for first aid providers and educators on topics.

https://www.globalfirstaidcentre.org/
such as assessing the scene and good hand hygiene.

First aid education

Choose from a selection of some common first aid education contexts and modalities. There are also some education strategy essentials to provide the theory behind our education approach.
About the guidelines

Here you can find out about the process for developing these Guidelines, and access some tools to help you implement them locally.