CGE - Becoming the CE Expert in Your Organization – Best Practices Exchange

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Abstract

When there is an issue or question about CGE, are you the individual that everyone approaches? If so, think about how and when this began occurring and what led to this. If not, think about what would be required to become a CGE, also known as CE-SDS, superstar. While CGE is commonly used in development and quality control laboratories world-wide by analysts with varying levels of experience, true expertise in this area is not as common as you might think. This roundtable will focus on the means to become a CGE expert by sharing best practices, methods of learning and training, and shared common experiences.

Questions for Discussion and Notes:

1. What are some of the best tools/trainings available to learn CGE (online, books, vendors, etc.)?

2. What are some of the most beneficial ways of learning CGE best practices, pitfalls, etc.?

3. What is most difficult in becoming an expert in CGE?

4. How would one go about mentoring someone in becoming a CGE expert?

This round table focused on becoming the CE expert in your organization – Best practices exchange.

The group consisted of both new users of CE and CE experts.

Throughout the session we found that there are different kinds of experts as you can be assay expert, instrument expert and software expert. The group mainly consisted of assay and instrument experts, but the considerations below can apply to all three.

First topic was where everyone got their CGE related literature for training and the main online sources for knowledge was vendor manuals and then knowledge obtained from experts within one's own company, and then a lot of laboratory work.

A lot of experience and knowledge of CGE is found within the company and their CE work group/experts that support trouble shooting of systems and assays. This means that not a lot of online expert knowledge is available for the CE community across companies except for the CE Pharm notes from round table and troubleshooting discussion.

Second topic was beneficial ways of learning CGE best practice and pitfalls and here the practical part is important. There is a lot to learn from breaking the instrument and then having to fix it or trouble shoot the

assay. Also, when working close to QC laboratories a lot of simple mistakes may be made and you learn a lot from trouble shooting these mistakes.

The group suggested a vendor-supplied trouble shooting poster may be a valuable resource. This is very much used in the LC world and is not widely available for CE. If you need external input, you must contact vendor and then they must tell you next steps to trouble shoot.

You learn a lot from teaching others, answering questions, and hearing all the problems that occur. This often means being 'one point of entry' for these tasks and thus it is recommended to be a group of experts and not only a single person. Having this small expert group is also a good way to share knowledge within the company.

Third topic was what is difficult in becoming an expert in CGE. And while it is great to have somebody to learn from (an expert) it can also be a hindrance in becoming an expert. It is therefore important that the established expert allows another to also become an expert, includes him/her in trouble shooting and answer questions.

There are a lot that affects CGE making it difficult to be an expert and know all, but it does allow for a lot of trouble shooting experience. It is important to take the time to find the root cause of the problem otherwise it is difficult to learn from the trouble shooting. A trouble shooting expert is a good idea to have to ensure a good procedure.

The fourth and last topic was on how to mentor someone in becoming an expert. This was viewed both from the mentor and mentee. As an expert the suggestion was to write down one's experience for others to use, make a check list for trouble shooting based on one's experience and 'translate' vendor manuals, so they are more accessible for a developing expert. It is important to always have an open door for the developing expert to help and guide.

It is important to use the developing expert to help fix instruments and it is important that the expert does not take over but only assists in the process. There is no fast and easy way to become an expert because the best way to learn is by hands on experience.

When the expert helps the developing expert solve problems it requires a lot of questions. This might be taken as a critic of one's work or feel frustrating because it requires extra work. To mitigate this, it is important as an expert that you explain that yes this will require extra work and many questions. Also let the developing expert present data and expected next steps before suggesting new tests or reasons.

It can be a good learning to have an intern or other student that the developing expert must supervise as the developing expert will grow with the tasks of explaining theory, develop and trouble shoot instrument and assays with the student. Likewise, training others also gives more knowledge as one must know the theory to explain it to others.

In general, it is important to have several experts in a company and for a group to share experience.

Personal characteristics that are beneficial in an expert and mentor are patience, accepting for the fact that it takes time to teach, to help to learn, to listen to a problem without judging and encourage people to suggest next steps. For practical training it is important to know when to help and when to let one try on their own and then ensure that the developing expert gets to set up experiments.

Personal characteristics that are beneficial for a mentee and developing expert are to want to be the expert. As this is a difficult and time-consuming task it is important to want to be an expert. It is important

to use time to prepare experiments in a good way and to look at and interpret data. Even though a next step might just be a best guess in the beginning it is important to think about it and present them.

To really become an expert, it is also important to have a sponsor. This person is not a scientific expert but can help you get access and time for training, participate in conferences, make posters, presentations, etc. In general, this person allows you to grow into the new role and help identify next steps to becoming an expert.

Tips and tricks emerging during our session:

It was noted that to learn about the instrument and assay it is recommended to include a control in each run as this allows for trouble shooting on both.

Always collecting at 220nm and 221nm for indicating if the peak is protein related and always look at the current trace.

When performing trouble shooting it is advised to plot data and look for trends. Data is plotted against factors that can affect results like person, capillary, kit, location etc.

One could also use statistics to find significant factors.

Software integration challenges also occur in QC and opens for software experts here. This is because of automatic integration requirements. It is shared that manual drop down is added to the integration explanation in the instruction allowing for manual corrections of the automatic integration. This is especially advised for instructions that cover several sites.