

# EVALUATION OF COMMUNICATION TRAINING PROGRAM FOR MEDICAL EMERGENCY COMMUNICATION (AMK) CENTRE

Defining and evaluating trained behaviors

Jennifer Gerwing  
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## Introduction to rationale and trained behaviors

When people in Norway need urgent medical assistance, they phone the medical emergency line (113) to seek help and speak with an emergency call (Akuttmedisinsk kommunikasjonssentral, or AMK) operator. In these calls, time is precious, and consequences of misunderstandings can be severe and possibly life-threatening. While cooperation and mutual understanding between caller and AMK operator are critical, they must manage a dramatic lack of common ground to accomplish the task:

*Table 1. Areas of common ground lacking between citizen callers and AMK operators*

	<b>Citizen Caller</b>	<b>AMK Operator</b>
<i>Role</i>	Distressed citizen who <i>needs help</i>	Health care professional who <i>can help</i>
<i>Epistemic domain</i>	Immediate access to self (or other person), unfolding situation, history	Medical, health care system, potential patient records via personal number
<i>Responsibility</i>	Moral (whether calling for self or other)	Professional
<i>Emotional proximity</i>	May be distressing and frightening, whether calling for self or other	Distant, professional
<i>Familiarity with situation</i>	Likely low, extraordinary situation	High, everyday, routine work

This analysis tests an intervention designed to teach AMK operators the skills they need to bridge these differences in common ground, thereby enhancing cooperation by becoming more *aligned* with the caller.

*Table 2. Brief operational definition of behaviors taught in the course*

<b>Behavior</b>	<b>Rationale</b>	<b>Briefest definition for positive evaluation</b>
<i>Greeting</i>	decreases uncertainty at the outset of the call and defines the operator's role	the number of the centre (113), the operator's name, and (if applicable) that they are a nurse
<i>Open-ended questions</i>	gives callers maximum autonomy, accountability, and opportunity to describe what is within their epistemic domain, i.e., their situation	request for information that requires a substantive answer from the caller (i.e., more than yes, no, or choice from a closed list of options)
<i>Acknowledging the caller</i>	signals that the caller's actions reflect fulfilled moral or ethical responsibility	statements that thank or compliment the caller's contributions and actions
<i>Expressing empathy</i>	bridges emotional distance, allowing the caller to feel the operator's compassion	expressions or utterances that share, match, or directly address the caller's observable positive or negative state
<i>Agreeing with the caller</i>	offers callers the sense that the operator has confidence in their ability to observe and evaluate the situation	a positive response to caller's opinions/evaluations that would normally be within the operator's epistemic domain

The process of analysis is to target a candidate for the trained behavior and then evaluate whether the operator was successful. This process is facilitated using a two-stage process. That is, identifying trained behaviors systematically and comprehensively is facilitated by examining every operator's utterances first and filtering them to target evaluation on only the most relevant candidates for each behavior. To accomplish this, we draw in part on the concept of *interactive functions*: What is each of the operator's utterances *doing* in the conversation. We use definitions of interactive functions from Gerwing and Healing (2019 version), matching them like this:

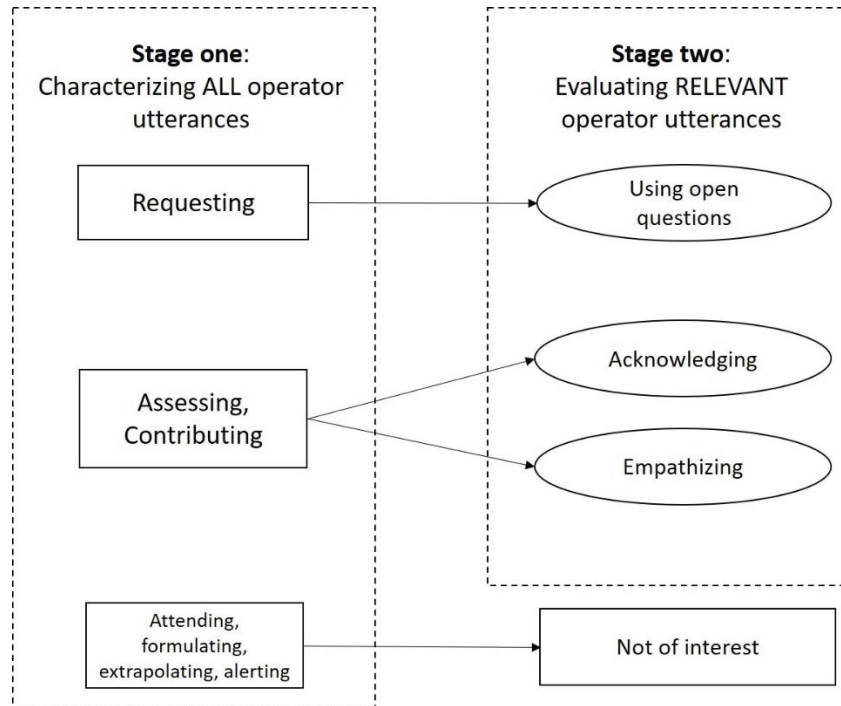


Fig. 1 Model for filtering for open questions, empathy, and acknowledgements

So, for example, rather than examining every operator utterance to evaluate whether it is an example of *using open questions*, we first quickly locate all *requesting* utterances. Then we examine only those targets to see whether each fulfilled the definition of an *open question*. This analytical strategy was designed both to decrease time for analysis and to increase systematicity in evaluation decisions.

Notes: Evaluating *greetings* does not require this strategy, as they are presented early in each call.

Assessing *agreeing with the caller* requires a different, but related strategy. For these, all caller utterances are examined to locate those in which the caller is undertaking an activity that falls within the operator's domain (e.g., diagnosing their or others' symptoms, triaging self or other). Once these are identified, the responsive operator utterances can be examined to assess whether they expressed agreement with the caller.

## Procedures for analysis

Preparation: See Appendix A for example

- Copy and paste the transcript into excel worksheet
- Label the worksheet with the filename of the transcript (e.g., AJ, AK...)
- Number all utterances in the worksheet
  - keep numbering consistent throughout analysis
  - if new utterances are added later, add letters instead of changing numbers: 5a, 5b, 5c
- In the transcript file, number the utterances so they match the worksheet.
- Clearly differentiate between operator and caller utterances by filling operator utterance cells with a color
- Insert top row from previously completed analysis sheet (preserve column width to save time)
- Give the file a shorthand, memorable name (e.g., toddler falls off chair), which you will put in the “all scores” sheet

## Outline of decisions

First decision: Greeting

Make the first decision about the operator’s greeting (see next section) and *then hide that column*

Stage one: Characterizing operator utterances by interactive function to create a filter

- Listen to audio and adjust transcript where needed (do not change numbering). Note that often operator’s backchannels are missing in the transcript and must be added.
- Characterize each of the operator utterances according to the functions (see next section)
- One utterance can have multiple functions. When multiple functions, be sure to note the ones that are consequential for this analysis (requesting, assessing, contributing). Then when filtering, the correct function will be captured for stage two.

Stage two: Evaluating relevant operator utterances

- Filter utterances in the interactive function column by requesting
  - Analyze all req’s for the categories stipulated below (closed, list, open, doubtful, multiple), noting a “1” in the cell if it fits the definition. We are primarily interested in the open questions, but we may use the list of all questions as a reference point.
- Filter utterances in the interactive function column by contributing and assessing
  - Evaluate whether these fit the definitions for acknowledging/thanking.
- Remove the filter and listen to the call with the whole transcript available to listen for empathy responses. Note that the candidates will be either assessing or contributing, but since they are *responsive* to the caller’s utterances, it is helpful to have those immediately available.

Stage three: Discerning operator agreement

- Filter all CALLER utterances (using the color of the cell)
- Highlight caller utterances that convey opinions, plans, evaluations that are within the operator’s epistemic domain (e.g., interpreting symptoms, deciding whether an ambulance is or is not necessary, formulating a plan for how to deal with the situation)
- Unfilter and examine operator responses to these utterances to assess whether the operator agrees, either implicitly or explicitly

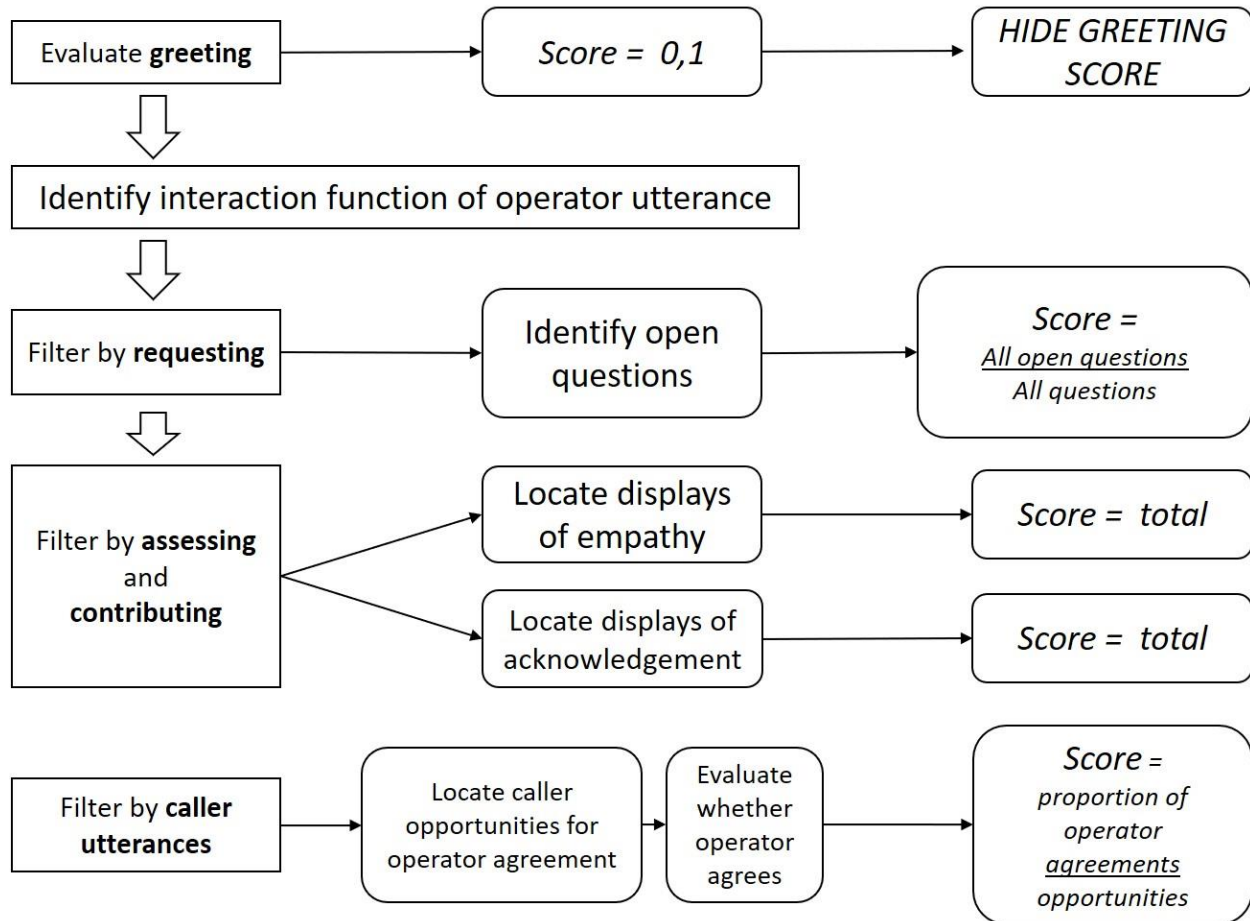


Fig. 2. Flow chart of decisions and scoring



## Full operational definitions

### Notes about examples

- “A” denotes operator, “B” denotes caller. Any letters used after “B” indicate more parties on the line (either more operators/health/emergency personal or more callers).
- The letters and numbers in parentheses after the ex. number show filename and line number.
- Repeated letters (e.g., XXX, tttt) in an utterance signify information not added in the transcripts so that they remain anonymous (e.g., telephone number, personal number, name, address).

### First decision: Evaluate greeting

The greeting is any utterances the operator uses to open the call and introduce him or herself.

#### **Ex. 1 (AK, 1)**

A: Medisinsk nødtelefon, 113

This greeting includes the generic name of the service and the number the caller dialed. Note it is the first utterance.

#### **Ex. 2 (AJ, 1)**

A: 113, du snakker med **XXX**

This greeting is the number, and the XXX indicates the operator has provided his or her name. Also the first utterance.

Note that they might not always be the first utterance in the audio recording:

#### **Ex. 3 (AI, 12)**

A: Hallo ja. Hei, da var det 113

The operator introduces herself to the caller in the 12<sup>th</sup> utterance because before that, she was talking with another operator.

### Scoring greetings:

The operators were taught the following formula: say the number the caller dialed (“113”), say “nurse” if applicable, and say “(name)”. To receive a score of 1, the number and name (or nurse) are required. All other greetings are 0.

#### Scores for above examples:

- Example 1 → 0
- Example 2 → 1
- Example 3 → 0

When you have made this decision, note it in the appropriate cell and hide that column.

### Stage one: Characterizing all operator utterances to create filter

The first stage of analysis is to filter operator utterances to facilitate systematic decisions. For this analysis, we differentiate among 8 types of operator utterances (requesting, assessing, contributing, attending, alerting, extrapolating, formulating, closing). While each type of utterance could be interesting, for the purpose of filtering, only the first three are targeted for evaluation. Any utterance characterized by other functions need not be examined further.

Conduct this stage listening to the audio and following along in the transcript. If any utterances are missing, add them without changing the numbering (e.g., use 12a, 12b, 12c). This stage of analysis has the additional function of familiarizing the analyst with the call before conducting any evaluation.

An utterance can be assigned more than one function (e.g., part of it might be contributing and part requesting). There is no need to note all functions, but be sure to note requesting, contributing and assessing.

#### Requesting information (Req)

These are utterances in which the operator invites the caller to provide new information. They function to invite new topical content *that has not yet come up in the conversation*.

#### **Ex. 4 (AK, 3)**

A: Ja hei. Hva kan jeg hjelpe deg med?

The second part of this utterance is a question (starting with “What...”), in which the operator seeks information from the caller regarding what she can help him with.

Requesting can be in the form of a question (as above) or a polite imperative.

#### **Ex. 5 (AI, 16)**

A: Kan du fortelle meg hvor du trenger hjelp?

Here the operator is making an indirect request that the caller provide information regarding where he needs help (akin to “can you pass the salt”).

Requesting can also look like the operator is contributing information, but statements about informational needs can be considered as functioning to invite information from the caller:

#### **Ex. 6 (AI, 18)**

A: Jeg må få adressen som han er på nå

Here the operator is stating that he must get the address where he is now, which is functioning to invite the caller to provide that information.

Note that sometimes operators use something that sounds like a question to formulate what the caller has already said or extrapolate from what the caller has said so far (to check whether his or her understanding is correct). These sound like questions, but they are not because they are not inviting new information (see definitions below for *formulating* and *extrapolating*).

**All utterances that serve to request new information are targeted for the next stage of analysis, during which they will be evaluated as to whether they are open questions.**

### Contributing (Cont)

These are substantive utterances in which the operator offers new information (e.g., an opinion, an evaluation, a compliment, instructions, something to expect in the immediate future).

#### Ex. 7 (AI, 30)

A: Ja, da vet du, da var du til stor hjelp vet du. Du er ikke sammen med ham nå sier du?

In the first part of this utterance (you were very helpful, you know), the operator is contributing information about his opinion about how the caller participated in the conversation.

#### Ex. 8 (AJ, 29)

A: Ja. Da er det sen legevakt du må ta kontakt med, det er der de har lege. Vi har ikke lege her på 113.

Here the operator informs the caller about what the caller can do next and why.

### Assessing (Assess)

These are operator utterances in which they respond minimally to information the caller has conveyed but in a way that has a *semantic or interpretive link* to what the caller has said. Assessing utterances show the operator's brief reaction to what the caller has just said. These can be a way that operators mark information as favorable or problematic.

#### Ex. 9 (AI, 35, 36)

B: Ja skal vi se her, det har jeg. Skal vi se, nå har jeg det selvfølgelig i den telefonen som jeg sitter... Men... et øyeblikk her, skal vi se. Skal vi se her, den blar så fortærende sent selvfølgelig når du har litt hastverk. Skal vi se... Det er **tttttttt**

A: Ja. Kjempeflott. Tusen takk. Da skal jeg ringe ham vet du. Så får du ha tusen takk for hjelpa.

Here the operator's «Kjempeflott» is included as assessing, because it displays a reaction to the information the caller just provided.

Whereas neutral backchannels should be considered *attending* (see definition below), backchannels that stand out because they are said in a tone of voice that matches what the caller has said (e.g., a sympathetic tone, an urgent tone) *must be considered assessing*.

**All utterances that function to contribute or assess are targeted for the next stage of analysis, during which they are noted if they function to show empathy, acknowledge or thank the caller.**

Functions that exclude operator utterances from Stage two of analysis

#### *Attending (Att)*

These utterances are minimal responses with no semantic link to what the speaker just said (e.g., mm, m-hm, ja, said in a neutral tone). Attending utterances function to imply that the operator is following along, paying attention, and urging the caller to continue to provide more new information.

#### *Alerting (Alert)*

These utterances function to notify the caller of some trouble in understanding. They are usually requests to repeat an utterance (e.g., hva sa du?).

#### *Formulating (Form)*

These utterances function to provide a display of what the operator has understood by *furnishing the gist of what the caller had said*. Formulating can range from simple repetition to paraphrasing.

#### **Ex. 10 (AI2, 62)**

B: Det er elektrisk. De må jo inn en port her også.

A: En port, ja.

The caller says they must enter a gate, the operator repeats “a gate”, showing what she understood.

#### *Extrapolating (Ext)*

These are operator utterances that function to provide a display of what the operator has understood by *drawing a logical inference based on the caller's previous contribution(s)*. Extrapolating shows that the operator has inferred something new (that the caller did not say) that is predictable to the operator and knowable to the caller (who can confirm or disconfirm). These look like requesting, but they are not.

#### **Ex. 11 (AI1, 30)**

A: Ja, da vet du, da var du til stor hjelp vet du. Du er ikke sammen med ham nå sier du?

Before this utterance, the caller had said he was calling for a friend and provided information about what was happening. The context up to that point suggested strongly that he was not actually with his friend, but he had not yet said this. The operator could extrapolate that this was the case.

#### *Closing salutation (close)*

Save this category for utterances that are solely closing the call, when they serve no other function (e.g., ha det bra, ha det godt, lykke til). Sometimes the closing utterance can be categorized otherwise.

#### **Ex. 12 (AN, 47)**

A: Ok, fint det. Takk.

Here the operator is finishing the call with a characterization of the situation and a thank you. These can be considered *contributing* instead of *closing*.

#### **Ex. 13 (AM, 53)**

A: Ja, da kan du snakke videre med legevakten.

Here the operator is informing the caller that she will now be able to talk to someone at legevakten. This is the closing utterance from the operator for this caller, but it can be considered *contributing*.

## Stage two: Evaluating targeted operator utterances

The following definitions identify how to assess which targeted utterances exemplify trained behaviors.

### Ask open questions judiciously

In excel, filter the column of interactive functions by 'req' (including if 'req' is one of multiple functions in that column). You should now have ONLY targeted utterances in view (i.e., no other operator utterances and no caller utterances).

Evaluate whether questions are open, closed, listed options, or multiple. The most important decision is whether the requesting is open, but short definitions of the others are provided below the definition for open questions. You may not need to listen to the audio to make this decision.

Questions can be evaluated in terms of the extent to which they constrain the caller's answer. Note that how the caller actually answers the question should not influence the evaluation of the question. (What the caller does in response is hidden anyway because of how the excel file is filtered.)

### Open questions

Open questions constrain callers the least, limiting the caller's information-provision only to the topic being asked about.

#### **Ex. 14 (AK, 3)**

A: Ja hei. Hva kan jeg hjelpe deg med?

The operator invites the caller to contribute any information on the topic of what she can do to help.

#### **Ex. 15 (AA, 19)**

A: Ja akkurat. Hvor i magen sitter de i, smertene?

The operator invites the caller to provide information about where the pain is

#### **Ex. 16 (AD, 21)**

A: Nei. Albue og skulder. Hvordan skjedde dette da?

The caller has told the operator that she broke her arm somewhere between her elbow and shoulder.

The operator then asks the caller to provide information about how it happened.

### Listed-option questions

Listed-option questions constrain the caller to the responses the operator provides (e.g., is it a cold sweat or a warm sweat?)

#### **Ex. 17 (AA, 9)**

A: mm Hvordan er han akkurat nå da, er han tørr og varm i huden eller blek og klam?

The operator requests information about the man's skin, providing two options (dry and hot vs. pale and clammy). This question projects that the caller constrains the answer to one of the options.

**Ex. 18 (AB, 3)**

A: Ja. Er det noe etasje der eller er det en enebolig.

The operator asks about the caller's location. As above, the question constrains the caller's answer to whether there are floors there (i.e., is it an apartment building) or whether it is a detached house.

*Closed questions*

Closed questions simply constrain the caller to answering with "yes" or "no".

**Ex. 19 (AB, 15)**

A: Er du tørr og varm i huden?

The operator asks whether the caller's skin is dry and hot, constraining the caller's answer to yes or no.

**Ex. 20 (AD, 21b)**

A: Falt du?

The operator asks whether the caller fell, which the caller can answer with yes or no.

*Special cases*

There are three situations that come up repeatedly and should be treated systematically: When the operator (1) asks multiple questions, (2) ends a question with "eller", and (3) asks about the caller's epistemic access to the person in distress. These are explicated below.

*Special case #1: Multiple questions*

When the operator asks multiple questions before the caller answers (i.e., in one utterance), make the evaluation based on the last question asked.

**Ex. 21 (AR, 15b)**

A: Hvordan opplever du henne, opplever du at du får normal kontakt med henne?

The first question is open, the last question is closed.

Decision: closed question

**Ex. 22 (AR, 27)**

A: Ja. (4.8s pause) Hun stod da på en stol og så falt rett bakover eller fremover eller hvordan skjedde dette?

The first question is listed options, but the last question is open.

Decision: open question

### Special case #2: “eller”

Sometimes operators add the word “eller” at the end of a question. If the question begins as a listed option one, the “eller” makes it open. Without the “eller”, the list of options projects that the caller should answer by choosing one; with the “eller”, the list projects that the caller consider the options as relevant candidate answers, but the caller can answer with something else.

#### **Ex. 23 (AI, 22)**

A: Ja det forstår jeg. Men er det noen etasje eller noen bokstav eller?

Here the operator requests information about what the paramedics should expect on their way to the caller. The operator asks whether there are floors or letters; by adding “eller”, the question projects if there is something *e/else* relevant the paramedics should know about, the caller can provide that information. Rather than constraining the caller’s answer, the options provide possibilities.

In contrast, if the operator asks a closed, yes/no question and adds “eller”, it is still a closed question because the “eller” really stands for “or not”.

#### **Ex. 24 (AK, 25)**

A: Men det at han hadde vondt i ryggen tidligere i dag, er det en kjent problemstilling eller?

The operator asks whether the pain in the back is a known issue, which the caller can answer with yes or no. The “eller” at the end does not open to more possibilities.

### Special case #3: Asking about epistemic access

Operators sometimes ask whether the caller has access to information (e.g., do you know... have you checked...). Such questions are closed from a grammatical standpoint (either you know or don’t know, either you’ve checked or you haven’t). However, some epistemic-access questions project a more substantive answer if the caller answers in the affirmative, because the affirmative alone would be insufficient.

One way to decide whether an epistemic-access question is open is to paraphrase the question, removing the part about access. The paraphrased question can then be evaluated. It also can be useful for the analyst to imagine answering the original (non-paraphrased) question with “yes”. If the “yes” would be insufficient, the question should be considered open. Examples should clarify.

#### **Ex. 25 (AK, 35)**

A: Har du fått målt temperaturen hans i dag?

Removing the access aspect of this question makes it “What is his temperature”, which is an open question. Further, by trying the answer “yes”, one can see that the question projects providing the actual measurement; that is, it would be strange to expect the operator to follow up with “and what is the temperature”.

Decision: Open question

**Ex. 26 (AK, 31)**

A: Vet du om han har feber?

Removing the access aspect renders the question “Does he have a fever”, which is a closed question. Further, the answer “yes he does” here would suffice without any requirement that the caller provide more specific information about the actual temperature. The caller might volunteer that information, but not necessarily.

Decision: Closed question

While subtle, these differences are worth noting, and the operators should receive credit for some of these as open questions even if they are grammatically closed. The operators may have learned from experience: Asking an *open epistemic-access question* has two advantages. (1) It could be more efficient and (2) it preserves the relationship with the caller. For example, starting off by asking, “What is his temperature” presupposes that the caller took the temperature. If the caller did not, he or she cannot answer the question (except to say “I don’t know”), which has implications for time (if the caller begins to provide an account of why not) and relationship (if the caller loses face because he cannot provide the information he should have been able to provide). Asking instead “Have you taken his temperature” presupposes that the caller may or may not have taken it, simultaneously suggesting the acceptability of the latter while projecting that the caller provide the temperature if able to answer in the affirmative.

**Ex. 27 (AI, 16)**

A: Kan du fortelle meg hvor du trenger hjelp?

This question presupposes that the caller might not be able to say where he needs help, thereby projecting the acceptability of not knowing. It also projects that if the caller can answer “yes”, the caller should provide that information without requiring the follow up question: “Where do you need help”.

Decision: Open question

**Scoring questions:**

**One point for each utterance that is an open question**

**Repeated open questions should be scored one point each (because the operator had the option to turn it into a closed question and did not)**



## Acknowledging the caller's actions

### *Notes about procedure*

In excel, filter the column of interactive functions by 'cont' and 'assess' (including if either of these functions is one of multiple functions in that column). You should now have ONLY targeted utterances in view (i.e., no other operator utterances and no caller utterances).

### *Definition*

Evaluate whether any of the filtered utterances are any variation of "thank you" to the caller, for example, for calling or for providing information. These can also be compliments (you have been very helpful).

#### **Ex. 28 (AI, 30)**

A: Ja, da vet du, da var du til stor hjelp vet du. Du er ikke sammen med ham nå sier du?

The operator compliments the caller on being a big help.

#### **Ex. 29 (AR, 57-59)**

57. A: Skal vi se... der fant jeg henne. XXX XXX, stemmer det?

58. B: Ja.

59. A: Kjempebra. Er **xxx** frisk fra tidligere?

In this excerpt, one caller utterance is provided as context. Previously the caller had provided information about her child's name so that the operator could find her records online. In line 59, the operator receives the caller's confirmation that she has located the correct record. By saying "kjempebra" she acknowledges that this information is helpful, and by implication, the cooperation of the caller.

### **Scoring acknowledging:**

**One point for each utterance that conveys content that acknowledges the caller's cooperation and help.**

**Only one point per utterance, even if there is more than one distinct acknowledging statement. (If the caller had responded in between the acknowledgements, it would get scored as two, but if there is no response, there is no need to assign multiple points.)**

## Expressing empathy

### *Notes about procedure*

To do this part of the analysis, it is necessary to listen to the call and have the whole transcript available. Listening is required because many empathic responses are only discernable in the operator's tone of voice. The whole transcript is helpful because empathy is responsive: The response should fit something about what the caller is doing at the moment.

### *Background and definition*

Empathy is the ability to understand or share the feelings of others. We cannot analyze the extent to which operators *feel* empathy, but we can examine what they say for whether they are *displaying* empathy to the caller.

Emergencies constitute the daily routine for the operators but are likely extraordinary and frightening for the caller. If the operator consistently displays a routine orientation in the face of a situation that might be distressing to the caller, the caller might not experience compassion (even though the operator is helping at a professional level). It can therefore be important for operators to go outside their routine behaviors to express empathy and allow callers to experience compassion at a more personal level.

Note that the difficulty of defining and recognizing empathy in this setting is that inherent in the operators' role is helping the caller; thus, *routine, normal helping behaviors cannot be considered taking the perspective of the other, even if they are kind.*

Empathy in this situation is therefore defined as (1) deviations from routine (of e.g., questioning, gathering information, advising) to do something that links semantically/affectively to what could reasonably be considered the emotional state of the caller and (2) doing so specifically for *that* caller at *that* moment (i.e., a sympathetic backchannel might fit perfectly in one moment but not another).

### *Three types of empathic responses*

Be alert to three types of empathic responses in these calls. While this analysis does not require noting precisely which kind of empathy response is being scored, these are described below to alert the analyst to relevant responses. Note that in these three cases, the operators are doing something *that they do not need to do* to fulfill their professional responsibilities. In each case, the operator is doing something over and above the normal routine to fit with what the caller is expressing.

### *Affiliating*

Operators display empathy when they say or express emotions that *affiliate* with the caller's expressed emotional state (expressing the same). In these expressions, they unite with the caller and express something together.

#### **Ex. 30 (AR 70-72) [requires listening]**

This example is only evident by listening to the call. While the operator and caller chat a bit waiting for the ambulance to arrive, they laugh together, sharing relief that the caller's little girl seems to be fine.

### Accommodating

Operators can also show empathy by *accommodating* routine responses to match the caller's expressed emotional state. Accommodating is adjusting something that the operator would otherwise be doing. These are usually shown in adjusted tone of voice (e.g., doing a backchannel response in a sympathetic tone). These can only be identified by listening to the calls, they are invisible on transcripts.

#### Ex. 31 (AM) [requires listening]

As with the previous example, the empathy responses are discernable only by listening to the audio. Many of the operators' backchannels in this call are said in a more empathic tone. It is important to note that not all of them are, because often what the caller has said does not warrant a signal of empathy.

### Addressing

Operators can also *address* possible emotions, showing empathy in a more instrumental, direct manner.

#### Ex. 32 (AR, 67)

66 B: Ja. [uklart] det har ikke vært bra. Men så hun hadde også... Det var bare så knallhardt klask i bakken med liksom hodet ned. Det så liksom så drastisk ut.

67 A: Ja, ja, det er klart det. Det er klart det. Nei da, men jeg tenker det er lurt jeg at ambulansen kommer en tur og tar en kikk. De passerer golfbanen nå.

The caller (B) expresses that her child's head hitting the ground looked so "drastic". In the operator's response, she acknowledges the caller's worry while updating her on the specific location of the ambulance at that moment, providing a clear image of the proximity of concrete help for the caller. Note that the operator is not required to provide this location information, they had already discussed that the ambulance was on the way.

#### Ex. 33 (BF, 33b) [NOTE: here the AMK operator is B]

Here the caller (C) was phoning 113 because he was worried about his adult son who lived in a different city. He had epilepsy and was not answering the phone. The operator had arranged dispatch of the ambulance already. The caller was having difficulty remembering his son's exact birthday, which the operator needed in order to find him in the system. Sorting this out was taking time, and the operator may have picked up that this created extra stress for the father.

32 C: **YYYYYY**. Jeg sa feil dato. Det er så lenge siden og så... jeg begynner å bli gammel jeg.

33 B: Skal vi se... hvis det er ligger... lagt inn litt annerledes så får jeg ikke treff skjønner du, det er det som er.

33a C: ok

33b B: mm Ambulansen er varslet altså, så det forsinker ikke noe at jeg leter etter ham her. Men det skal jeg finne ut hvis han bor på **AAAAA**.

34 C: Prøv **dd.mm**. Det kan hende jeg bytter over.

Line 33b is an expression of empathy because here the operator informed the father that the time this was taking would not delay the ambulance.

**Ex. 34 (AR, 15)**

The caller was a mother phoning about her daughter, a toddler who had fallen off her Tripp Trapp, knocking her head sharply on the floor.

13 A: Ja. Er det henne jeg hører gråter nå?

14 B: Ja.

15 A: Ja. Det er veldig bra at hun gråter, det betyr at hun puster fint.

In line 13, the operator checks whether the crying she hears in the background is the little girl. The caller confirms that it is. In line 15, the operator tells her both that this is a good sign and why it is. Neither is required in her information-gathering role at that point in the call; the operator goes beyond her immediate routine to reassure the caller.

Some utterances seem empathic but are not, according to the definition provided here. For example, operators do not receive empathy points for generic, routine expressions that can be doled out to any caller at any time, such as “I understand”, “you shall get help”. (Note that operators were explicitly told in the course that these did not count as empathy.) Further, routine politeness and kindness do not necessarily count as empathy because they do not fit *at the level of emotion*.

**Scoring empathy:**

**One point for each utterance that expresses empathy. As with acknowledging, no multiple empathy points should be assigned for a single utterance.**

## Agreeing with the caller's evaluation

### Notes about procedure

This analysis is a two-step process. First, in excel, filter the transcript column by caller (using the color of the cell to do so). You will then see only caller utterances. Analyze whether any utterances fit the definition of “opportunities for agreement” (see definitions below). Highlight any opportunities.

Second, analyze the operator's immediate response to each opportunity to see whether it fits the definition for operator agreement (see definitions below).

### Background and definition

To determine what help is needed for addressing the medical emergency, operators and callers work together, fulfilling distinct roles. One of callers' primary roles is to provide accurate information about what is happening so that the operator can make appropriate decisions. Operators' primary roles include *assessing the distressed person's medical situation* and *matching it to the available resources*. Callers sometimes say things that fit operators' roles rather than their own, making medical assessments of the situation themselves or proposing which resources are best. For example, beyond describing the patient's situation (chest pain, sweaty, etc.), they might diagnose the problem (he's having a heart attack) and triage (i.e., send an ambulance right away).

Activities such as diagnosis or triage, when conducted by the caller, present opportunities for conflict, even if they match what the operator might decide. [side note for later: While this is a natural thing for callers to do, it can push operator's buttons as it frames the interaction as customer service rather than public service.] Any ensuing disagreement in the conversation risks cooperation, and at worst, robs the emergent situation of time otherwise spent addressing the safety of the person in distress.

In the context of avoiding disagreement, and with the aim to smooth cooperation with callers, operators were trained to express agreement with callers. Actual agreement was irrelevant.

The purpose of this analysis is to (1) locate opportunities for agreement in the caller utterances, and then (2) ascertain whether the operator expresses agreement (explicitly or implicitly) in the next turn.

### Opportunities for agreement

Diagnosing statements are ones in which the caller *defines the problem* that the symptoms the caller is experiencing (or witnessing) suggest (e.g., a heart attack, a gallbladder attack, a stroke).

#### Ex. 35 (AG, 4)

B: Ja. Kona er i ferd med å få noe som ser ut som et anafylaktisk sjokk. Jeg er sykepleier, jeg har vært borti det en del før...

The caller diagnoses his wife's symptoms as ones of anaphylactic shock.

#### Ex. 36 (BD, 8)

B: Nei han ringte til meg nå og sier han har veldig store smerter i brystet. Hjerteinfarkt tenker jeg. Han får ikke puste nesten.

Here the caller states that he thinks his friend is having a heart attack.

Diagnosing can be distinguished from just providing information about what the caller is experiencing or witnessing (e.g., describing the symptoms). Such descriptions should not be considered opportunities for agreement as defined here.

**Ex. 37 (AA, 2)**

B: Hallo det er **XXX XXXXXX** som ringer ifra **STED**. Jeg har en mann som har veldig sterke magesmerter. Han har vært på legevakta en gang før i dag til noe utredning. Men nå har han kommet hjem, han blir bare enda verre.

This caller only describes a symptom (stomach pain) and some circumstances, but does not define the problem.

Statements that refer to an existing condition do not count as an opportunity for agreement.

**Ex. 38 (AK, 74)**

B: Ja, ja. Ja jeg visste ikke hva jeg skulle gjøre jeg, for det... jeg har aldri opplevd ham sånn. Her står det en kapsel 3 x daglig. Og det er en 30 tabletter. Så han skal... det står i epikrisen hans fra sykehuset når han egentlig skal være ferdig med den. Men så har han jo diabetes også.

This caller states that her husband has diabetes.

Finally, statements about how an external medical authority defined the problem do not count as opportunities for agreement.

**Ex. 39 (AK, 8)**

B: Han kom hjem fra sykehuset i går etter en lungebetennelse.

The caller explains that her husband had pneumonia; since he was at the hospital, it can be assumed that this was their diagnosis, not her own.

Triaging statements are also opportunities for agreement. For example, a request for an ambulance counts as one, as the decision to send an ambulance is part of the operator's role. Operators were trained to agree with such statements, regardless of whether they did or not.

**Ex. 40 (AQ, 2)**

B: Hallo. Jeg trenger en ambulanse.

In the second turn, the caller states that he needs an ambulance, which presupposes that he has assessed the situation and decided one is necessary.

A request is still considered an opportunity for agreement even if the caller formulates it very politely.

**Ex. 41 (BD, 4)**

B: Jeg skulle gjerne ha en sykebil til **ADRESSE** på **STED**, **YYY YYYYYY**

This is still a request for an ambulance, providing an opportunity for the operator to agree,

When callers triage the situation, they do not necessarily decide that an ambulance is needed. Sometimes they decide that one is not needed, and they can address the problem in a different way.

**Ex. 42 (AR, 46d, 48)**

46d B: Men jeg tror helt ærlig at det går bra nå.

47 A: Ja det er veldig bra

48 B: Jeg kunne jo eventuelt tatt meg en tur ut på legevakta isteden da, nå?

The caller first makes an assessment of the situation (it is going very well now), which is one opportunity for agreement. She then suggests that maybe she could go to the emergency afterhours clinic herself, instead of sending an ambulance. This is an additional opportunity for agreement.

Finally, explaining physiological mechanisms underlying the caller's immediate situation and advising what paramedics or others should do both constitute opportunities for agreement.

**Ex. 43 (AV, 44)**

C: Han sier han har smerter. Jeg tror det er adrenalinet, men fingeren er nesten helt... ja. Så han bør nok... ambulansen bør nok ha is når de kommer.

In this call, the caller is calling on behalf of someone who has had his finger almost entirely cut off by a machine at the workplace. In this utterance, the caller conveys two opportunities for the operator to agree: She mentions the role of adrenaline (because the patient did not feel faint) and also suggests that the ambulance should bring ice when they arrived. (Note that since these occur in one utterance, for analysis they will count as one opportunity.

### Operator agreement

Immediately after callers make statements that constitute opportunities, operators can express agreement or disagreement.

**Ex. 44 (AR, 49)**

46d B: Men jeg tror helt ærlig at det går bra nå.

47 A: Ja det er veldig bra

48 B: Jeg kunne jo eventuelt tatt meg en tur ut på legevakta isteden da, nå?

49 A: Ja vet du hva, nå har kollegaen min allerede varslet en ambulanse som er på vei til dere. Og da tenker jeg at da gjør du en vurdering sammen med ambulansen på om **xxx** trenger en tur inn til legevakten for en sjekk eller hva som er mest hensiktsmessig.

Here the operator says "Ja" before continuing by saying that the ambulance is coming. The "Ja" is enough to be considered agreeing. Note that it was not necessary, she could have preceded her statement about the ambulance coming with "no".

**Ex. 45 (BD, 5)**

4 B: Jeg skulle gjerne ha en sykebil til **ADRESSE** på **STED, YYY YYYYYY**

5 A: Ja vent nå. Du sa... hvilken adresse sa du?

The caller has requested an ambulance almost immediately, before providing information about what is happening to the operator. Nevertheless, the operator begins utterance 5 with an expression of agreement ("Ja"), before going on to ask questions.

**Ex. 46 (AV, 45)**

44 C: Han sier han har smerter. Jeg tror det er adrenalinet, men fingeren er nesten helt... ja. Så han bør nok... ambulansen bør nok ha is når de kommer.

45 A: Ja ambulansen er på vei ut nå. Men kan du spørre... men jeg må bare ha tak i om han er i ferd med å besvime nå.

Here, the operator expresses agreement (with "Ja") before going on to say that she would like to know whether he is fainting now.

Agreement does not have to be explicit, as it is in the previous examples. It can be implicit, when the operator goes on to ask relevant questions, based on what the caller has said. In other words, simply a lack of disagreeing or challenging what the caller has said is sufficient.

**Ex. 47 (AQ, 3)**

2 B: Hallo. Jeg trenger en ambulanse.

3 A: Hva er det som skjer, og hvor? Hvor er du?

The operator's questions are relevant to the caller's request for an ambulance.

As above, disagreeing with the caller does not have to be an explicit "no", it can be not going along with what the caller is proposing.

**Ex. 48 (AC, 18)**

17 C: Normal farge i huden. Men vi kan godt kjøre inn altså, det er ikke noe problem det.

18 A: Jeg tror vi sender en ambulanse. Vi har sendt en ambulanse nå, og så kan de vurdere

This example is similar to 47 above, in which the caller triages the situation and proposes that an ambulance is not needed. The operator counters this proposal and says that they will send an ambulance. Note that this could have been an agreement if the operator had simply said, "ja" (perhaps as a marker of considering the proposal) before continuing to say what she had decided.

**Scoring agreeing:**

Agreeing is a proportional score for each call, where the denominator is the number of caller utterances that fit the definition for an opportunity for agreement and the numerator is the number of times the operator agreed.

As with acknowledging, and empathy, no multiple agreeing points should be assigned for a single utterance.



### Appendix A: Screen shot of blank excel sheet for one call

[illegible]

## Appendix B: Screen shot of filled excel sheet for same call

	A	B	C	D	E	F	G	H	I	J	K	L
1			Utttype	greet	Closed	Options	Open	Multi	empathy	acknowledge	opp_agree	agree
2	1	A: Medisinsk nødtelefon 113.	Gre	0								
3	2	B: Hallo. Jeg trenger en ambulanse.									1	
4	3	A: Hva er det som skjer, og hvor? Hvor er du?	req				1	1				1
5	4	B: ADRESSE										
6	5	A: ADRESSE	form									
7	6	B: Ja,										
8	6a	A: Ja	att									
9	6b	B: på STED										
10	7	A: Ja på STED.	form									
11	7a	B: Ja										
12	7b	A: Og hva er det som skjer der?	req				1					
13	8	B: Jeg har så vondt.										
14	9	A: Hvor da?	req				1					
15	10	B: Jeg får bare blod ut av urinen.										
16	10a	A: Ja	att									
17	10b	B: Og der har jeg vondt.										
18	11	A: Ja så du har vondt i blæra.	form									
19	12	B: Ja det må være det.										
20	13	A: Ja. Har du hatt noe sånt som dette her før eller?	req		1							
21	14	B: Nei ikke der. (Groans)										
22	15	A: Du skal få hjelp.	cont									
23	15a	B: Ja takk skal-										
24	15b	A: Bare, bare et lite lite øyeblikk.	cont									
25	16	B: Ja takk.										
26	17	A: Har du hatt noe urinveisinfeksjon i det siste eller?	req		1							
27	18	B: Nei jeg kan ikke si det.										
28	18a	A: Nei	form									
29	18b	B: Nei										
30	19	A: Men smertene... sitter den lavt nede i magen?	req		1							
31	20	B: Det har holdt på en stund, men nå plutselig så ble det så vondt.										
32	21	A: Ja... riktig.	ass									
33	21a	B: (groans)										
34	21b	A: Du skal få hjelp. [uklart-- det kommer?] Er du alene hjemme?	cont, req		1							
35	22	B: [uklart]										
36	23	A: Er du alene hjemme?	req		1							
37	24	B: Ja jeg er alene.										
38	25	A: Er dera di åpen.	req		1							
39	26	B: Ja										
40	26a	A: Ja	att									
41	26b	B: den er... ja.										
42	27	A: Du får... du skal få hjelp. Så fort vi har mulighet så kommer det en bil utover til deg.	cont									
43	28	B: Ja takk skal du ha.										
44	29	A: Ja greit det. Ok. Ja... hei.	close									
45				0	6	0	3	1	0	0	1	1