



# More Than Coding – What Else There Is To Clinical Programming



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# Collaboration and Teamwork

## Why is this skill important?

- Knowledge exchange
- Individual growth
- Strong developer-validator pairs
- Enhanced efficiency and productivity in project work

## How can we put this skill into practice?

- Awareness of team member's strengths and weaknesses
- Constructive feedback
- Goal setting
- Prioritization and task division



# Communication

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## Why is this skill important?

- Among programmers: enhanced efficiency during project work
- Towards clients: inquire more information about the project, confirm timelines, regular updates
- With people from other departments who are involved in the same project

## How can we put this skill into practice?

- Situation dependent: e-mails, team meetings, stakeholder meetings
- Apply the 7Cs of Communication



# The 7 C's of Effective Communication

**C Clear**  
Be clear about the goal and purpose of your message

**C Coherent**  
Make sure your message flows well and is laid out logically

**C Concise**  
Keep to the point and keep your message short and simple

**C Complete**  
Ensure the recipient has everything they need to understand

**C Concrete**  
Be clear, not fuzzy! Provide detail, but not too much to confuse

**C Courteous**  
Your message should be polite, friendly, professional and open

**C Correct**  
Make sure your message is accurate and grammatically correct



Source: [The 7 Cs of Communication - Revolution Learning and Development Ltd](#)

# Communication

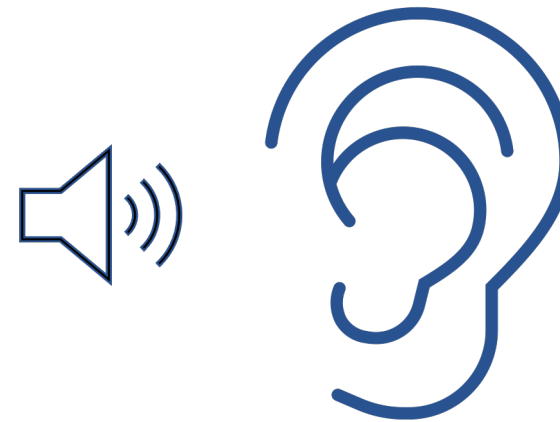


## Why is this skill important?

- Among programmers: enhanced efficiency during project work
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## How can we put this skill into practice?

- Situation dependent: e-mails, team meetings, stakeholder meetings
- Apply the 7Cs of Communication
- Listen and understand

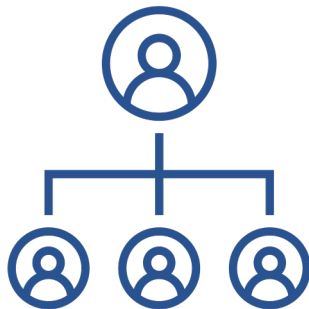




# Management Skills

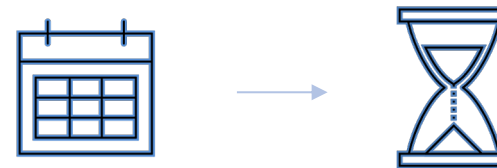
## Why is this skill important?

- Manage project timelines
- Prioritize tasks
- Document work processes
- Take the role as project lead
- Supervise various projects



## How can we put this skill into practice?

- Timeline creation and budget tracking
- Progress reports
- Predict difficult parts of a project
- People management



# Attention to Detail



## Why is this skill important?

- Develop programs
- Understand data and logs
- Pattern recognition
- Error handling
- Quality checks

## How can we put this skill into practice?

- Prioritize quality over quantity
- Focus on one task at a time
- Take breaks
- Structure the code





# Example code structure

```
%macro time();  
data work.data2;  
length timepoint $200;  
set work.data1;  
%let n=1|5|10|15|20|25|50|75|100;  
%do i=1 %to %sysfunc(countw(&n.,|));  
%let j=%scan(&n.,&i.,|);  
timepoint=strip("T&j.");  
%end; run;  
  
%mend time;  
%time;
```

```
/* Process timepoints */  
%macro time_proc();  
data work.timepoints;  
length timepoint $200;  
set work.source;  
  
%let timepoint_nums = 1|5|10|15|20|25|50|75|100;  
%do count = 1 %to %sysfunc(countw(&timepoint_nums.,|));  
  
/* Select the numeric value of timepoint variable names */  
%let num = %scan(&timepoint_nums.,&count.,|);  
  
/* Derive timepoints by adding numeric values to the "T"-prefix */  
timepoint=strip("T&num.");  
  
%end;  
  
run;  
%mend time_proc;  
%time_proc;
```

- Indenting
- Spaces
- Descriptive comments
- Meaningful variable names





# Curiosity and Continuous Learning

## Why is this skill important?

- Stay up to date with technological or clinical developments
- Optimize work processes
- Contribute to the development of new clinical guidelines and implementing them

## How can we put this skill into practice?

- Organize and attend “Lunch & Learn”
- Present at and attend conferences, such as the PHUSE
- Join events, such as hackathons
- Own research



# Thank you for listening!

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