

Supplementary Table S2: Translated statements from the responses of the online survey, categorized as perceived positive features, areas for improvement, and non-codable statements.

Statements about perceived positive features		
Participant	Statement Number	Statement
1	1	Visual Patient is amusing
7	1	[I like the] clarity provided by Visual Patient
	2	ability to assess the situation, even from a distance, when numbers are no longer legible
9	1	Good visibility of alarms, even from a greater distance (although not relevant in anesthesia practice)
11	1	The rapid visible changes [are beneficial]
12	1	Visualizing temperature
13	1	Good color contrast
	2	[I like the] Snowflakes
15	1	Problems are quickly and easily identified
16	1	Good overview
	2	[Visual Patient gives me] the ability to quickly identify all problems in a dynamic situation
17	1	All vital parameters are visually presented
	2	and easily recognizable
18	1	The purple discoloration helps me particularly with saturation at 94
19	1	A good addition to the numerical display
21	1	I find the cyanosis detection very good
24	1	[Visual Patient] provides a quick overview, especially when things get hectic, without triggering alarms
25	1	Useful supplementary tool
26	1	Clear structure
	2	easily visible
27	1	I notice when the Visual Patient shows a low temperature or poor saturation because the visual appearance changes significantly
30	1	Clear visual support for identifying the underlying problem when there is a deviation in "one" of our measurement parameters
32	2	I like the intuitive understanding of my patient's circulation
33	1	[I like the] easier identification of ST changes
34	1	Heartrate [is particularly easy to identify]
	2	Hypoxemia [is particularly easy to identify]
	3	hypertension [is] particularly easy to identify
35	1	Pathologies can be easily detected from a distance
37	1	Quick overview of various parameters
38	1	Fast and good situation awareness
	2	Problems are noticed more quickly
39	1	Vital parameters at a glance
41	1	Funny additional information that usually works

42	1	You get used to it very quickly
44	1	Provides a general overview of whether everything is within the normal range
45	1	A tool that can be helpful, especially for beginners
47	1	Provides a quicker overview alongside the numbers. First glance at the avatar, then the numbers
50	1	Rapid identification of problems
52	1	Simplicity
53	1	It summarizes the most important data at a glance
54	1	[Good] visualization of the patient
	2	The purple color immediately catches the eye, indicating a drop in saturation
55	1	[I like] the temperature display
56	1	Simplicity
58	1	Good size (doesn't dominate the screen)
59	1	I feel that my awareness of changes in vital parameters is higher
60	1	Even non-IFA personnel notice changes, leading to more interdisciplinary discussions about vital parameters
61	1	On the first glance, a lot of information can already be inferred
	2	The different colors and symbols are easily distinguishable and provide good indicators
62	1	Temperature display [is good]
63	1	The visual representation is intuitive and easy to understand

Perceived areas of improvement

Participant	Statement Number	Statement
1	2	When displaying multiple parameters (in ICU patients, neurosurgery, cardiac surgery), it becomes bothersome
	3	limited space on the monitor
	5	[should be] smaller
2	2	too much blinking
	3	It [should] react to the user-set alarm thresholds and [should not be] pre-set
3	1	In my opinion, it does not simplify everyday tasks
	5	[User-set] alarm thresholds should be automatically adopted
	7	Frequent incorrect representation of vital parameters (e.g., lung moving in sync with pulse at frequencies of 90/min)
5	2	It takes up too much space on the monitor
	4	individual limits cannot be set
6	1	In my view, it has little utility. With several years of professional experience, I focus on the values, not the avatar
	2	For example, during a stroke, the avatar blinks even though high blood pressure thresholds are intentionally set. This only confuses the user
	3	The user-set thresholds should be considered as the norm since they are intentionally chosen

7	3	A larger portion of the split monitor should be dedicated to curves and measurements that are incorporated into the avatar
8	2	Nobody pays attention to the VP
9	3	The reduction of the remaining curves is a major point of criticism
	4	Adjustable alarm thresholds, or automatic adoption of monitor alarm thresholds
10	2	Integration of trends (e.g., temperature)
11	2	in the settings, some do not correspond to the presets
	3	some reactions are confusing
12	2	The alarm thresholds must correspond to the alarm thresholds set for normal vital parameter settings. Otherwise, there are too many alarms
13	3	Ability to independently adjust limits would be great, so that values that are too high or too low could be adjusted for the individual patient
14	3	For SpO2, you may want to enter changeable values so that a COPD patient is not displayed as purple all the time
15	2	Adjust the reference values for O2 saturation - 95% is quite high
16	3	Link the limits of the VP to the alarm thresholds, possibly with a small offset
17	3	[I would like to see] more gradations, for example, in cases of hyper- or hypotension or SpO2 (not just good or bad or more than 2 colors)
18	2	The cyanosis could be further differentiated in color
19	2	Ability to set limits for Visual Patient oneself. BIS, saturation... triggers alarms too early
20	1	Currently, it only serves as a screensaver when the X3 is on the monitor or during transport
	2	For me, it is a waste of technical resources since the technology is not designed for this amount of data
	4	Furthermore, the technology is far from being advanced enough for the avatar to automatically adjust to alarm thresholds
	5	[I would prefer] automatic adjustment to the alarm thresholds, regardless of how they are set
21	2	It would be helpful if the color could be further differentiated. Similarly, CO2 could be color-coded for hyper- or hypocapnia
22	1	No added value for my work; I tend to ignore it.
	2	Alarm thresholds should apply according to the set limits.
23	2	Setting of threshold values
24	2	Adjustable limits/trends
25	2	Individualization of thresholds
26	3	Age-specific alarm thresholds
27	2	I must say that I tend to ignore the Visual Patient; I rely on numerical values and curves as they are more informative
28	1	Unfortunately, no advantages are apparent.

	2	Not applicable for highly specialized anesthesia.
29	1	The ability to turn it off
	2	The ability to turn it off with just one button press
	3	If it cannot be turned off, it would be advantageous to enter custom alarm thresholds
30	2	If multiple parameters deviate near the limits, the overview is lost because too many stimuli are displayed at the same time
	3	This requires disciplined adjustment of the thresholds. I would like an adapted option with situation-adaptive thresholds to maintain the overview
31	2	Too restless
	3	no customization options (alarm thresholds, acknowledgment, etc.)
32	3	The alarm thresholds must be adjustable (e.g., for a patient with low SpO ₂ , but it can be tolerated)
	4	The current visual representation during tachycardia is too hectic. I cannot work with the VP for tachycardic patients. It is like a stroboscope. I understand that you deliberately did not choose the actual frequency for display. Please reconsider this. You might be hindering yourselves with this dogma
	5	The graphical representation of the VP needs to be more professional. Patients often find it strange and point this out. Perhaps a project with design students could help. Currently, it still looks like a homemade gingerbread figure and not quite professional (Sorry...).
	6	Why not have both a male and female VP? That would be cool, but it's not really a criticism. Just an idea
33	2	Adjustable alarm thresholds
34	4	[It is difficult to perceive the information] when multiple problems occur simultaneously
35	2	Dedicated function, particularly regarding hemodynamics
36	1	Deactivation
	2	Not suitable for anesthesia professionals; perhaps more suitable for a different target audience without extensive training
37	2	The pulsation of the Visual Patient indicates whether the pulse is within the normal range. However, the frequency of pulsation does not match the heartbeat heard via SpO ₂ . This is very confusing because what is seen does not correspond to what is heard
38	3	[I would like the] inclusion of pacemaker function (as in a regular EKG)
39	2	Make alarm thresholds customizable
40	1	To be honest, I don't pay attention to it
	2	Implement alarms with less binary responses, e.g., BIS eyes open when EEG fluctuates slightly above 60

41	2	Better gradation of limits. For example, 36 degrees is too cold, and 36.1 is a normal temperature, not really informative
43	1	Currently, I don't pay attention to the avatar
	2	Not evaluable since I don't pay attention to the avatar
44	2	Too many pieces of information on too little space
	3	No trend visible
	4	No adjustment of normal values possible
45	2	Unable to set limits on the doll
	3	very hectic in children (tachycardia)
46	1	Not very helpful
	2	As long as the parameters cannot be adjusted specifically for each patient, the displayed deviations from normal parameters are unusable
47	2	Personally, I am still undecided whether it would be better to base the heart rate on the actual rate or some form of clustering. Perhaps multiple levels <40, 40-60, 60-100, 100-140, >140
	3	In general, are there already too many parameters displayed in VP and should it be reduced to the basics?
48	2	Remove the avatar from the screen
49	2	[Requires improvement in] TOF visualization
51	1	Most of the time, I focus on the "old" curves
	2	SpO2 turns deep blue from 95%
53	2	Adjustment of saturation limit to a minimum of 92%
54	3	The heart could also have a noticeable color, like green
55	2	Synchronization of pulse sounds with the pulsatile blood pressure display of the VP
57	2	The eyes are spooky
	4	does not provide the expected information
58	2	[Area of improvement:] alarm thresholds
59	2	Representation. ST-segment changes (with indicated "ischemia") are technically invalid when, for example, "Auto Size" is selected, as the "ischemia" suddenly disappears
62	2	Linking with alarm thresholds
63	2	Alarm thresholds need to be adjustable. A defined default is useful; for example, in thoracic surgery, a "blue" patient with SpO2 92% is often more confusing than helpful

Non-codable statements

Participant	Statement Number	Statement
1	4	rather distracting
2	1	Rather unnecessary
3	2	on the contrary, it distracts from vital parameters
	3	frequently displays them incorrectly

	4	It should be possible to turn it on and off based on user preference
	6	Automatic detection when monitoring is not connected (e.g., BIS) to avoid false readings
4	1	To hide it
5	1	Patients feel entertained
	3	cannot be hidden
8	1	The best option is to stop working with it
9	2	Overall, I have a negative impression of the technology
10	1	Helplessly cute
14	1	Good
	2	In addition, [I would like] an early warning system, for example, for temperature
20	3	the monitors often have problems
	6	The technology should be designed for the amount of data and should not lag behind for several years
23	1	Distracts from the raw data
31	1	Minimal [benefits]
32	1	First and foremost, I am a fan of VP. It is really great
42	2	Legend
48	1	No advantages apparent; it is a distracting factor on the screen, diverting attention from the essentials
49	1	Pediatrics
57	1	It's okay
	3	Currently often too confusing to look at