InSpine 3-10

Greetings from

India Spine Center

The growing business of
medical tourism

Creative problem solving
A new path to discovery

When buried deeply within a complex problem, it can be so hard to see the light at the end of the tunnel that it might not seem worth the effort to try to reach it. Fortunately, there is Creative Problem Solving, a strategy that can get you a fresh, unexpected solution.

An operating room is a place of limitations. For any procedure, there is a finite set of choices: this instrument, this entry, this cut, this stitch. To address a complication during an operation, there are also finite choices because even the unexpected is expected: if that happens, do this. Through training, study, and experience a surgeon almost always knows what to do when complications arise.

Many problems we face in life and at work are like those faced by a surgeon: they are algorithmic. There is a known solution and we need only apply it to the problem in order to affect a resolution.

However, not all problems are so compliant. The way forward is not always so clear, the prescribed path is not the way we wish to proceed. These problems that defy traditional problem solving and decision making are heuristic: they can be solved only by developing new, creative solutions. More than 50 years ago, advertising executive Alex Osborn studied how creative people work. e called the process he observed Creative Problem Solving (CPS). Osborn then joined forces with college professor Sidney Parnes, and together they provided the rigor of academic research and scrutiny to Osborn's observations. The result, now known as the Osborn-Parnes CPS Process, has been taught and used, researched and refined, and ultimately proven to work in a variety of challenging heuristic situations.

The CPS two-step: diverge, then converge

What distinguishes the Osborn-Parnes CPS process from other problem-solving processes is the dynamic balance of divergent and convergent thinking. Divergent thinking generates a wide range of options for the appropriate solution without immediate judgment. Convergent thinking judges potential solutions one by one—sorting, sifting, selecting, evaluating, and deciding.

CPS requires both divergent and convergent thinking, but not at the same time. As a guideline for separation, one simple action is required: defer judgment. To be sure, the CPS process must make good use of judgments, but premature judgment is the enemy of creativity.

What follows is a step-by-step process describing how to use the divergent and convergent thinking of CPS in order to produce a fresh, imaginative solution to a stale, burdensome problem.

CPS
creative problem solving

- Imagine the future
- Clarify the problem
- Generate ideas
- Craft solutions
- Explore acceptance
- Plan for action

Stage 1
Imagine the future

Creative problem solving begins with a vision and ends with a plan. In this stage, you will identify and record the vision statement: the goal to be achieved, the wish to be accomplished, the challenge to be surmounted.

Between the present state and the desired future there is a creative tension, a positive force that propels the problem solver toward the future he wishes to create. CPS seizes upon this creative tension and uses it to encourage the thinker to move from the present state into the future. As with all the stages in the process, CPS thinking must first diverge, then converge.

First, using your natural divergent ability–or a more formal tool such as brainstorming– generate many possible wish statements. (See table "Divergent thinking guidelines") Make the statements affirmative–that is, something you want, not something you wish to avoid. Generate statements that start with phrases such as, **"It would be great if..."** Continue the divergent thinking until you feel you have captured enough appropriate ideas for a vision statement-sand then begin converging.

Next, cull the options you generated until you are left with the one statement that best describes the goal you wish to pursue. Improve the statement until it expresses precisely the desired future state: this will be your vision statement. For example: "It would be great if we could have productive meetings."

Finally, gather any data you might need in order make decisions and achieve your vision. Include both objective data (facts, statistics, metrics, demographics, etc.), and subjective data (opinions, feelings, hunches, insights, observations, etc.).

Thinking guidelines

Divergent thinking guidelines

Defer judgment
This can be difficult, but try to resist your inclination to decide now whether an idea is good or not. Just record it.

Strive for quantity
The first ideas will likely be commonplace. Record them and keep going. Later ideas will tend to be more novel.

Seek novelty
If you are after creative solutions, you need to allow novel ideas to come out. Most will not work. That's OK.

Build and connect
Take ideas and build on them. Elaborate and extend. Connect the unconnected together.

Allow for incubation
Provide time to step away from the problem. Your mind will work on it without you, often to great benefit.

Convergent thinking guidelines

Apply affirmative judgment
Consider the good aspects of ideas, rather than finding only faults. Good ideas often get lost due to faults that could have been overcome.

Keep novelty alive
If you truly want creative solutions, don't immediately kill the novel ideas. Consider them carefully. Expand and improve them. Nurture them. Be brave.

Check the objectives
Return to the original objective (the goal, the question, etc) to be certain that the answers you are considering do in fact address the question at hand.

Improve ideas
Rather than dismiss ideas that are close but not perfect, allow time to see if they can be made to work.

Stage 2
Clarify the problem

Albert Einstein knew it, and now you will know it: problem identification is the key to successful problem solving.

Start by writing the Stage 1's vision statement where you can see it, such as on a whiteboard. Generate a list of problems that need to be solved in order to achieve the vision. Begin each question with a solution-seeking statement starter. Some examples of starters are as follows:

"How to..."

"How might..."

"In what ways might…"

A key skill to exercise during this activity is reframing, which is stating a question or problem in a different way. Quite often, reframing a problem reveals something essential about it and opens the door to a creative solution. For example, "How to have shorter meetings?" may be reframed to ask "How to have no meetings at all?" or, "How to make meetings enjoyable?". Continue generating problems until you feel you have captured all the relevant questions and then converge.

Cull the problem statements, eventually selecting one that best expresses the problem that needs to be solved in order to attain the envisioned goal. If needed, modify the problem statement until it expresses the question or problem precisely. For example: "How to make group decisions more quickly?"

Stage 3
Generate ideas

Many people assume that idea generation is creative thinking, but ideas are not, in and of themselves, creative. Remember that something is creative only if it is both novel and valuable. Novel though they may be, ideas are cheap; it's the solutions that are valuable. Therefore, we start by generating ideas in this stage and then use the ideas to create solutions in the next.

Write the problem statement from Stage 2 where you can see it, such as on a whiteboard. Generate ideas for solving the problem keeping the divergent thinking guidelines in mind, especially the one about deferring judgment. Take an incubation break if you hit a roadblock or think one is needed and then return to the idea generation exercise later. Continue until you have enough promising ideas to work with, then converge.

As always, cull to converge, improving or refining ideas where appropriate. Remember to keep novelty alive and be willing to take risks. It is easy at this stage to select the safe ideas, but that's not why you chose CPS in the first place. Narrow your list of ideas until you can select the most promising idea or ideas.

Stage 4
Craft solutions

Creativity is not magic, it is the result of dedication and hard work. During this stage, the hard work of combining, discarding, changing, and strengthening your promising ideas into a workable solution begins.

Start by using the POINt tool. POINt is a mnemonic that you can use to analyze ideas and judge whether they might become viable solutions. POINt begins with the positive viewpoint and then focuses on difficulties. Putting praise first is the key, especially in environments where finding fault is the modus operandi.

P—What are the **pluses**? List several advantages of the idea and then converge to keep only the most important or relevant.

O—What **opportunities** might the idea lead to? List several opportunities and then converge to keep only the most important or relevant. Begin these statements with "It might lead to…"

I—What are the **issues** that you must overcome in order to implement the idea? Begin these statements with "How to…" or "How might…"

Nt—Within the context of an idea, do some **new thinking:** generate ideas to overcome the issues or obstacles associated with the idea.

Apply POINt to each of your most promising ideas until you can converge on a viable solution.

Stage 5
Explore acceptance

When you explore acceptance, you survey the environment in which your solution will be implemented in order to determine the likelihood of its acceptance in practice. Prepare for some push-back from colleagues–ultimately, creativity is about change, and not everyone is going to love you for it.

Web resources

Creative problem solving
Free information and resources for CPS practitioners, including downloadable content.
www.creativeproblemsolving.com

Creative education foundation
Founded by Alex Osborn to advance creativity and the development of CPS
www.creativeeducationfoundation.org

Start by listing all the "assisters", the people who can help you to move your solution forward. On this list, include both stakeholders (those with a vested interest in the outcome), and others who may not have a direct stake in the outcome but who would be inclined to support you.

Then, list all the "resisters", the people and groups who might resist the solution. On your list of resisters, include both stakeholders and others who may not have a direct stake in the outcome, but who would be inclined to oppose you (regulators, public interest groups, your competition, etc.).

Next, from the list of potential assisters, select those on whom you will focus; do the same for the resisters. For each key assister, list ways that you might be able to enlist their help or use their influence. For each key resister, list ideas for overcoming their resistance such as education, persuasion, concession, modification, or better communication.

Finally, identify the steps you will take to enlist the aid of each assister, and the steps you will take to address the resisters. These steps will be included in your plan for action.

Stage 6
Plan for action

To be successful, a creative solution must be implemented. In the final CPS stage, you will create an action plan for successful implementation. The type of plan you create will depend, necessarily, on the size and scope of the solution. Here is one broadly applicable type of action plan.

Start by generating a list of everything that will need to be done. Make sure you include the steps that involve solution acceptance recorded in the previous stage. Next, organize the steps in the order they must be done, adding steps that you missed, combining steps, and eliminating steps where necessary. Finally, for each task on the list, identify these three details: who will do the task, by when, and who is notified upon completion.

| Task / Action	By whom?	By when?	Report completion to whom?

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Radiology QUIZ

Analyze the pictures and do a diagnosis!
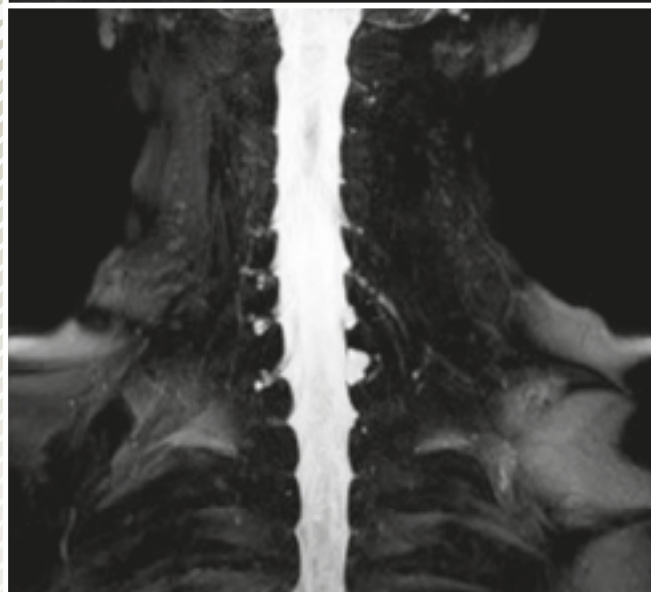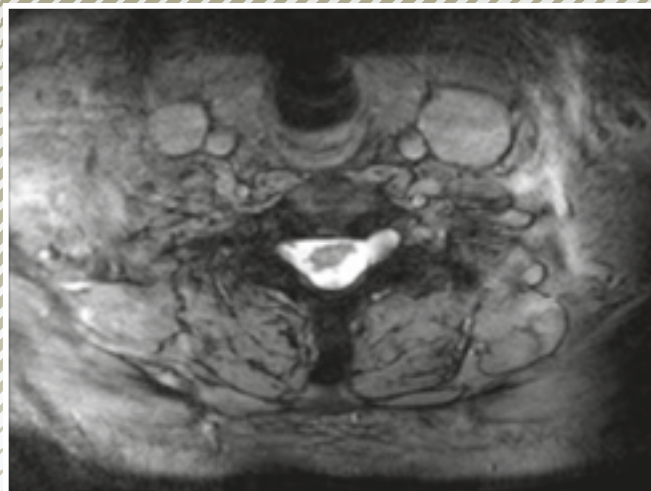
Case report
• 40-year-old female victim of physical trauma.
• Main complaint: loss of motor function and sensation in left hand.
• Axial and MIP myelographic images show:
  – Asymmetric fluid in the left nerve root sleeve within the left C7–T1 nerve foramen.
  – Less pronounced asymmetric fluid within the left C6–7 nerve foramen.
  – Absence of the normal ventral and dorsal nerve roots within the thecal sac.

ANSWER

Nerve root avulsion
Nerve root avulsions can be demonstrated on MRI or CT myelography; the characteristic appearance is pseudomeningocele within the nerve foramen, with unilateral absence of the nerve roots in the thecal sac.