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"SUTRA"

"Thread" of concise knowledge

Theme : "Women's Health : Prevent, Detect & Thrive"

Motto : "United in Purpose, Stronger Together"

President
Dr. Nita Thakre
+91 98250 42238
drthakre@gmail.com

Hon. Secretary
Dr. Parth Shah
+91 94296 17556
parthpjs@yahoo.com

Katalin Karikó

2nd Floor,
Dream Icon @ PARIMAL, Nr. Krupa Petrol Pump,
Nr. Kalgi Cross Road, Surendra Mangaldas Rd, Ellisbridge,
Ahmedabad, Gujarat 380006 Phone : 079 - 26586426
M : +91 78610 11818 I E-mail : office@ahmedabadobgyn.org

TEAM AOGS MESSAGE

Dr. Nita Thakre
President

Dr. Parth Shah
Hon. Secretary

From President's Desk

Operation Sindoor : Courage, Clarity, and the Rising Strength of Indian Women

The devastating terrorist attack in Pahalgam on April 22, 2025, which claimed 26 innocent lives, shook the conscience of our nation. But in the face of tragedy, India responded with decisive strength through **Operation Sindoor -** a series of bold military strikes launched on May 7, 2025, targeting terror infrastructure across the border.

As the President of AOGS and a lifelong advocate for **women's health and empowerment**, I am especially moved by the role women played in this operation. Operation Sindoor has become a **landmark moment** not just for national security, but also for women's leadership in the armed forces—a reflection of evolving societal values and deep-rooted strength.

A Symbol of Strength and Identity

The name Sindoor is rich with meaning. Traditionally a mark of marital identity and womanhood, it has now taken on a **broader national and symbolic resonance**—representing **sacrifice, resolve, and resilience**. The inclusion of women in key operational and strategic roles in this military response sends a strong message: **Indian women are not just symbols of tradition—they are forces of action.**

Women in Uniform: Breaking Frontlines and Barriers

Operation Sindoor marked a powerful turning point in the visibility of women officers in combat and intelligence. Their performance, praised by national leaders, including Union Minister Annapurna Devi, underscores the **importance of equal representation in national defense.**

For us in the medical community, particularly in obstetrics and gynecology, these developments are both **inspiring and instructive**. We are reminded daily that **health, empowerment, and safety are interconnected.** The courage seen in Operation Sindoor is the same spirit we nurture in our clinics and operating rooms.

The Broader Context: Safety, Health, and Resilience

While Operation Sindoor was a military response, its implications for civilian life—especially women's safety and well-being—are profound. Terrorist attacks and conflict disproportionately affect women, often leading to displacement, trauma, and health crises. This is why, as healthcare professionals, we must:

- Advocate informed care for women affected by violence
- Collaborate with defense and civil authorities in emergency medical preparedness
- Train first responders in handling gender-specific health needs in crisis zones
- Promote mental health support for survivors of terror and conflict

Empowerment in Action

This operation showed that national strength is gender-inclusive. It was not only a military success but a cultural shift—where women are seen not just as caretakers, but as defenders and leaders.

At AOGS, we recognize that empowering women in one sphere strengthens them in all others. We are committed to supporting policies and programs that uplift women across domains: medicine, military, public service, and beyond.

Looking Ahead

Let Operation Sindoor be a reminder: **women are not the exception in national service—they are central to it**. Let us honor their contributions by ensuring that our healthcare systems are prepared, our voices are united, and our mission is clear—to **protect, heal, and uplift.**

Jai Hind. Jai Nari Shakti.

Dr Nita Thakre

President, AOGS

CENTERSTAGE

Katalin Karikó

Katalin Karikó, PhD, is a Hungarian-American biochemist whose decades-long research into messenger RNA (mRNA) laid the biochemical foundation for the rapid development of mRNA-based vaccines, including those used against SARS-CoV-2. Born in 1955 in Szolnok, Hungary, Karikó earned her PhD in biochemistry from the University of Szeged before immigrating to the United States in 1985 following the loss of research funding in her home country.

Her scientific focus has consistently been on the therapeutic potential of synthetic mRNA. Despite years of limited institutional support, lack of sustained funding, and repeated professional setbacks, Karikó persisted. Her breakthrough came through collaboration with Dr. Drew Weissman, with whom she discovered that incorporating modified nucleosides (notably pseudouridine) into mRNA sequences dramatically reduced innate immune activation via Toll-like receptors, while maintaining translational efficiency.

This pivotal discovery, published in 2005, addressed the primary barrier to the clinical use of synthetic mRNA: its immunogenicity. The modified mRNA platform developed by Karikó and Weissman became the basis for the mRNA vaccines developed by BioNTech/Pfizer and Moderna, demonstrating rapid scalability and robust immunogenicity during the COVID-19 pandemic.Their work has catalyzed a broader reimagining of mRNA therapeutics for oncology, protein replacement therapies, and future pandemic preparedness

For her role in the advancement of mRNA technology, she and Weissman were awarded the 2023 Nobel Prize in Physiology or Medicine. She is one of only 13 women to be awarded a Nobel Prize in this category since 1947.

'Thalassemia - Challenges and Solutions'

Date : 4th May, 2025 - Sunday

Our AOGS in association with Red Cross Society and sponsored by Bankers IVF, celebrated the World Thalassemia Day" on 8th May, by conducting a CME and running a Thalassemia Detection Drive.

The CME was very well attended, executed and appreciated by everyone. The scientific content was excellent with all the speakers showing great efforts which was reciprocated by engaging audience. The important THM were

India is still the THALASSEMIA CAPITAL of the world with 25% of all the cases

We need awareness and action to prevent this at every level- premarital, preconception or post conception.

If there is a doubt post conception we can confirm it with a CVS or amniocentesis.

We can offer PGD as a very good option for carrier couples.

With 10k -15k children born with thalassemia major born every year, and suffering inspite of it being preventable, we need to strategise better.

The food too was a delicious summer spread relished by all. All in all it was a highly successful 1st CME at Aogs home ground!

As a commitment from us all to work for the "Thalassemia Mukt Bharat" we offered and advertised the screening tests at our clinics at highly dicounted rates to all our patients. We all pledged to spare some time to educate our patients for this preventable disorder and encourage them to undergo the screening tests .

These are our endeavours to work on our theme this year - prevent , detect and thrive.

These inspirational programs would not have been possible without the support of the team and all the members who are encouraging us with their presence and participation.

So a big thank you to all ..

'Thalassemia - Challenges and Solutions'

Date : 4th May, 2025 - Sunday

QUALITY CONTROL IN EMBRYOLOGY LAB

Mrs. Kiran Das Patel
15+ years experience of Embryology
Chief Embryologist,
Sneh IVF centre.

Introduction

The attention to detail in the embryology lab, strict quality control programs, new regulatory requirements, and the establishment of professional standards for embryology professionals are other significant factors that have significantly improved and stabilized the results in fertility programs.

Importance of Quality Management

The fundamental level of quality management is quality control, which includes procedures like inspection, testing, and checking and is focused on regulating a product's quality by identifying issues or flaws.

Quality assurance, a proactive, preventive process that tries to stop non-conformities from happening, is another crucial component of quality management. It acknowledges the processes' shortcomings. It is founded on the understanding that organization management is at the heart of quality assurance and that quality can be enhanced.

Quality improvement is now included in the scope of quality management. As a result, the modern quality management system (QMS) considers every facet of the system.

Quality management in IVF lab

The biology of the oocyte and the sperm controls Embryology. Therefore, the role of the embryology lab is to protect the gametes and embryos from harmful external influences and to provide the best possible environment (culture system) for them. It is crucial to realize that stress on gametes and embryos due to less-than-ideal culture conditions can change gene expression and cause epigenetic modifications, which can have negative consequences ranging from behavioral abnormalities to birth weight.

For an IVF lab this involves:

- Designing of IVF lab
- Maintenance of culture systems
- Proper handling of gametes and embryos

The IVF laboratory process was eloquently distributed into three areas by Dr Mortimer.

Process	Control	Factors	Requirements
Inputs	Gametes	COS, OPU Sperm collection and processing	Nuclear maturation,Suction pressure, temp Temp, prevention of iatrogenic damage, senescence
	Contact materials	OPU needles Semen collection jars Plastics –tubes & dishes Culture media	Non toxicity Sterility, non toxicity Sterility, non toxicity Formulations, sterility, endo toxins

Realisation	Lab environment Culture system	Air quality Light Incubators	Particulates & microbes VOCs Spectral sensitivity Temperature pCO2,pO2 Humidity VOCs Calibration Malfunction
	Lab process	Methodology Personnel Insemination Handling and assessment conditions	Selection, SOPs Training, skill, competence Washed sperm concentration Temp, medium, pH, osmolarity
Outputs		Zygotes, embryos, blastocysts	Developmental competence

Temperature:	**pH**	**Osmolality**
The human meiotic spindle is sensitive to temperature changes, and it changes in colder temperatures with little recovery after warming up. Variations in temperature can happen during follicular aspiration, gamete and embryo manipulation, and embryo transfer.	The pH of the media is maintained by bicarbonate buffer and controlled by the CO2 dissolved in the culture medium, which is in turn dependent on the partial pressure of CO2 in the incubator air (Henderson-Hasselbach equation). The pH ranged from 7.2 to 7.4 for each commercial culture.	The commercially available culture media have an osmolality between 255 and 298 mOsm/kg. Osmolality monitoring has gained attention due to advancements in cultural techniques like single step media, which involves prolonged culture without media change.

KPIs, or key performance indicators, are crucial for evaluating the following:
1) Creating minimal requirements for competence
2) Tracking continuous performance in a QMS
3) Introducing a novel method or procedure
4) External quality control
5) Quality improvement and benchmarking

KPIs are dependable, strong, and integrated into daily operations. Generally speaking, the outcomes of a number of KPIs will give a sufficient summary of the key phases in the IVF lab procedure. It is recommended that every laboratory create its own KPIs.
KPIs were those pertaining to the ART laboratory's "core business."

Reference Indicators for identifying performance of the ART laboratory

Reference Indicator	**Calculation**	**Benchmark Value**

Proportion of oocytes recovered (stimulated cycles)	no. oocytes retrieved × 100/ no. follicles on day of trigger	80–95% of follicles measured
Proportion of MII oocytes at ICSI	no. MII oocytes at ICSI × 100/ no. COC retrieved	75–90%
COC = cumulus-oocyte complexes; MII = metaphase II.		

Performance Indicators for the ART laboratory

Performance Indicator	Calculation	Competency value	Benchmark value
Sperm motility post-preparation (for IVF and IUI)	progressively motile sperm × 100/ all sperm counted	90%	≥95%
IVF polyspermy rate	no. fertilized oocytes with > 2PN × 100/ no. COC inseminated	<6%	
1PN rate (IVF)	no. 1PN oocytes × 100/ no. COC inseminated	<5%	
1PN rate (ICSI)	no. 1PN oocytes × 100/ no. MII oocytes injected	<3%	
Good blastocyst development rate	no. good quality blastocysts on Day 5 × 100/ no. 2PN/2PB oocytes on Day 1	≥30%	≥40%
COC = cumulus-oocyte complexes; ICSI = intracytoplasmic sperm injection; IUI = intrauterine insemination; PB = polar body; PN = pronucleus.			

KPIs for the ART laboratory

Key performance indicator	Calculation	Competency value	Benchmark value
ICSI damage rate	no. damaged or degenerated × 100/ all oocytes injected	≤10%	≤5%
ICSI normal fertilization rate	no. oocytes with 2PN and 2PB × 100/ no. MII oocytes injected	≥65%	≥80%
IVF normal fertilization rate	no. oocytes with 2PN and 2PB × 100/ no. COC inseminated	≥60%	≥75%
Failed fertilization rate (IVF) cycles	no. cycles with no evidence of fert'n × 100/ no. of stimulated IVF	<5%	
Cleavage rate	no. cleaved embryos on Day 2 × 100/ no. 2PN/2PB oocytes on Day 1	≥95%	≥99%
Day 2 embryo development rate	no. 4-cell embryos on Day 2 × 100/ no. normally fertilized oocytes (a)	≥50%	≥80%
Day 3 embryo development rate	no. 8-cell embryos on Day 3 × 100/ no. normally fertilized oocytes	≥45%	≥70%
Blastocyst development rate	no. blastocysts Day 5 × 100/ no. normally fertilized oocytes	≥40%	≥60%
Successful biopsy rate	no. biopsies with DNA detected × 100/ no. biopsies performed	≥90%	≥95%
Blastocyst cryosurvival rate	no. blastocysts appearing intact × 100/ no. blastocysts warmed	≥90%	≥99%
Implantation rate (cleavage stage) (b)	no. sacs seen on ultrasound × 100/ no. embryos transferred	≥25%	≥35%
Implantation rate	no. sacs seen on ultrasound (c) × 100/	≥35%	≥60%

(blastocyst stage) (b)	no. blastocysts transferred		

ICSI = intracytoplasmic sperm injection; MII = metaphase II; PB = polar body; PN = pronucleus.
a Defined as oocytes with 2PN and 2PB on Day 1.
b Based on total number of embryos transferred to all patients in the reference group, not just to those for whom an implantation occurred.
c Definition reached after discussion, as some felt that no. fetal heartbeat detected/no. embryos transferred was a more meaningful Indicator.

KPIs for ART Program

The results of any program must be sub grouped based on the female partners' age.

For each group the following should be calculated –

- Biochemical pregnancy rate (> 100 IU of serum beta hcg, 14 days post embryo transfer)
- Clinical pregnancy rate (gestational sac on ultrasound)
- Ongoing pregnancy rate (Presence of fetal heart pulsation on ultrasound by 7 weeks)
- Implantation rate (number of gestational sacs at 7 weeks ultrasound per embryos transferred, in percentage)
- Early pregnancy loss rate (proportion of positive serum beta hCG that fail to show gestational sac on ultrasound)
- Multiple pregnancy rate (number of pregnancies with more than one gestational sac on 7 weeks ultrasound)

Quality control of Equipment:

Evaluation of equipment performance and malfunction is a crucial part of lab equipment quality control. It is necessary to regularly check, service, and calibrate every piece of equipment in the IVF lab. Sensors for temperature, gas levels, volatile organic compounds, and LN2 levels can currently be connected to equipment independently.

This can warn the concerned person about a crisis in the lab, such as unexpected failure of equipment or malfunctioning, thus providing greater stability and reliability. A major advantage of the RTM is the remote accessibility.

An important aspect of quality control is daily monitoring of equipment and assessing its performance.

- Equipment performance

Every equipment has a definitive set of parameters to be checked on a daily basis such as the following:

- Laminar air flow – temperature of the working surfaces, air quality
- Incubator – measurement of gases, temperature, pH, humidity
- Test tube warmer - temperature
- Storage dewar – LN2 levels

Witnessing

Witnessing is another important aspect in preventing mishaps in the IVF lab. This can be done using human double witnessing or by using automated witnessing systems

Conclusion

It is the desire of all personnel involved in ART for a healthy singleton pregnancy for the patient and everyone strives for the same. At the same time quality is the standard which in turn translates to safety for the patient. Hence quality management systems are a must in present day ART.

References:

1. ESHRE Special Interest Group of Embryology and Alpha Scientists in Reproductive Medicine. Electronic address: coticchio.biogenesi@grupposandonato.it. The Vienna consensus: report of an expert meeting on the development of ART laboratory performance indicators. Reprod Biomed Online. 2017 Nov;35(5):494-510. doi: 10.1016/j.rbmo.2017.06.015. Epub 2017 Aug 4. PMID: 28784335

Medical Quiz

1. What is the primary purpose of quality control (QC) in an IVF laboratory?

A. To ensure consistency, reliability, and accuracy in procedures

B. To reduce costs

C. To increase patient flow

D. To speed up embryo transfer

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2. Which of the following parameters is most critical to monitor in incubators for embryo culture?

A. Airflow

B. Temperature, CO_2, and humidity levels

C. Light exposure

D. Electrical current

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3. What is the recommended temperature range for gamete and embryo handling in an IVF lab?

A. 25–28°C

B. 35–37°C

C. 20–22°C

D. 40–42°C

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4. The pH of embryo culture media is primarily regulated by:

A. Sodium chloride concentration

B. Incubator humidity

C. CO_2 levels

D. Oxygen levels

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5. Which type of quality control measure ensures that procedures are being performed the same way every time?

A. External quality assurance

B. Process validation

C. Standard operating procedures (SOPs)

D. Randomized audits

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6. Which of the following is a post-analytical quality control activity in IVF labs?

A. Verification of media pH

B. Monitoring incubator temperature

C.Calibration of micropipettes

D. Documentation and review of embryo grading

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7. What is the best practice for avoiding cross-contamination between patient samples in an IVF lab?

A. Using shared culture dishes

B. Rotating staff assignments

C. Rapid freezing of embryos

D. Strict patient identification and labeling protocols

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8. Which gas concentration is typically maintained for low-oxygen embryo culture systems?

A. 21% O_2

B. 10% O_2

C. 5% O_2

D. 0% O_2

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9. Internal quality control in IVF includes all of the following except:

A. Daily pH checks

B. Media sterility testing

C. External lab inspections

D. Temperature log reviews

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10. Which document ensures traceability and accountability in all stages of IVF procedures?

A. Chain of custody documentation

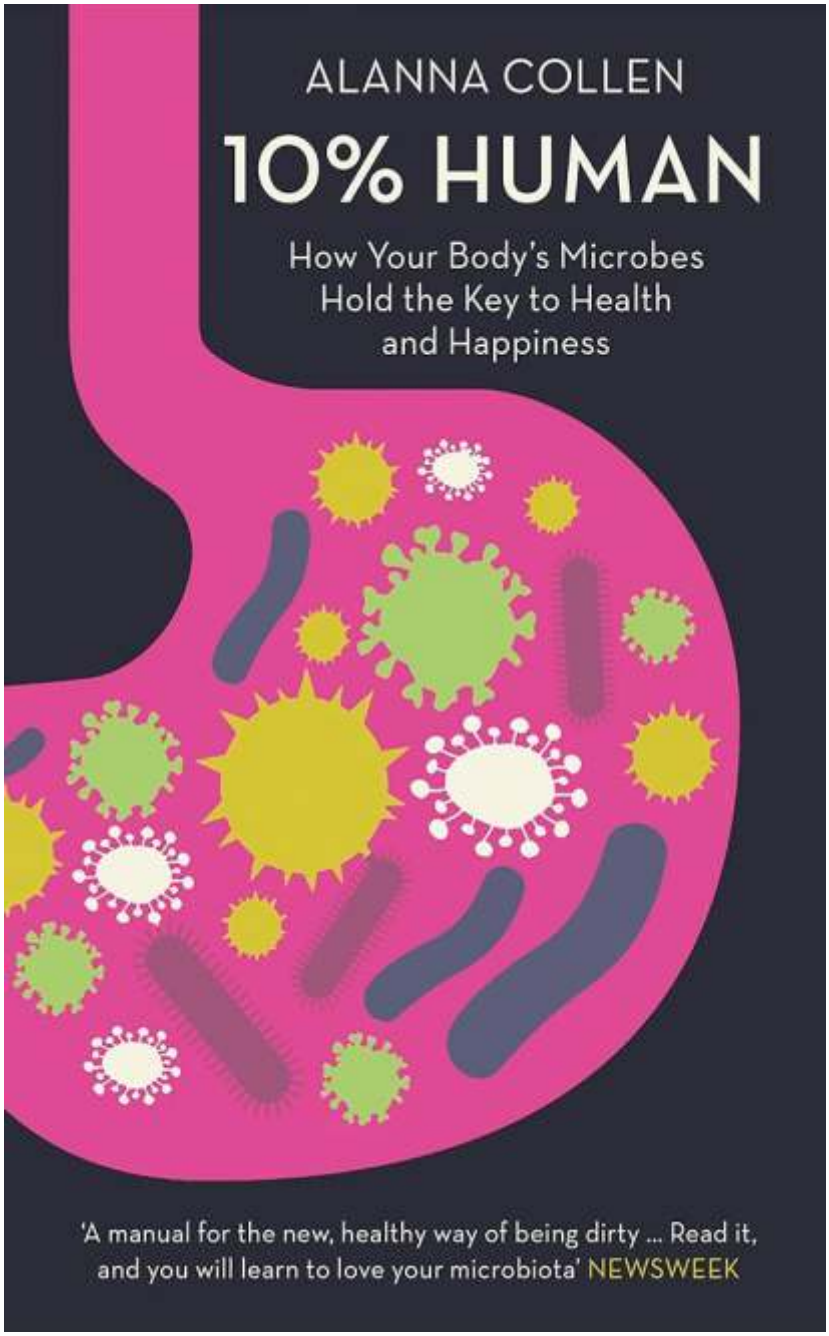
B. Lab budget

C. Consent form

D. Staff shift roster

Answers : 1A, 2B, 3B, 4C, 5C, 6D, 7D, 8C, 9C, 10A

READER'S CORNER



Alanna Collen's10% Human offers an engaging, accessible, and scientifically grounded exploration of the human microbiome—the trillions of bacteria, viruses, and other microorganisms that reside in and on the human body. Collen, a British biologist with a PhD in evolutionary biology, argues that these microbes are not merely passengers but integral partners that shape our immunity, metabolism, mental health, and even behavior.

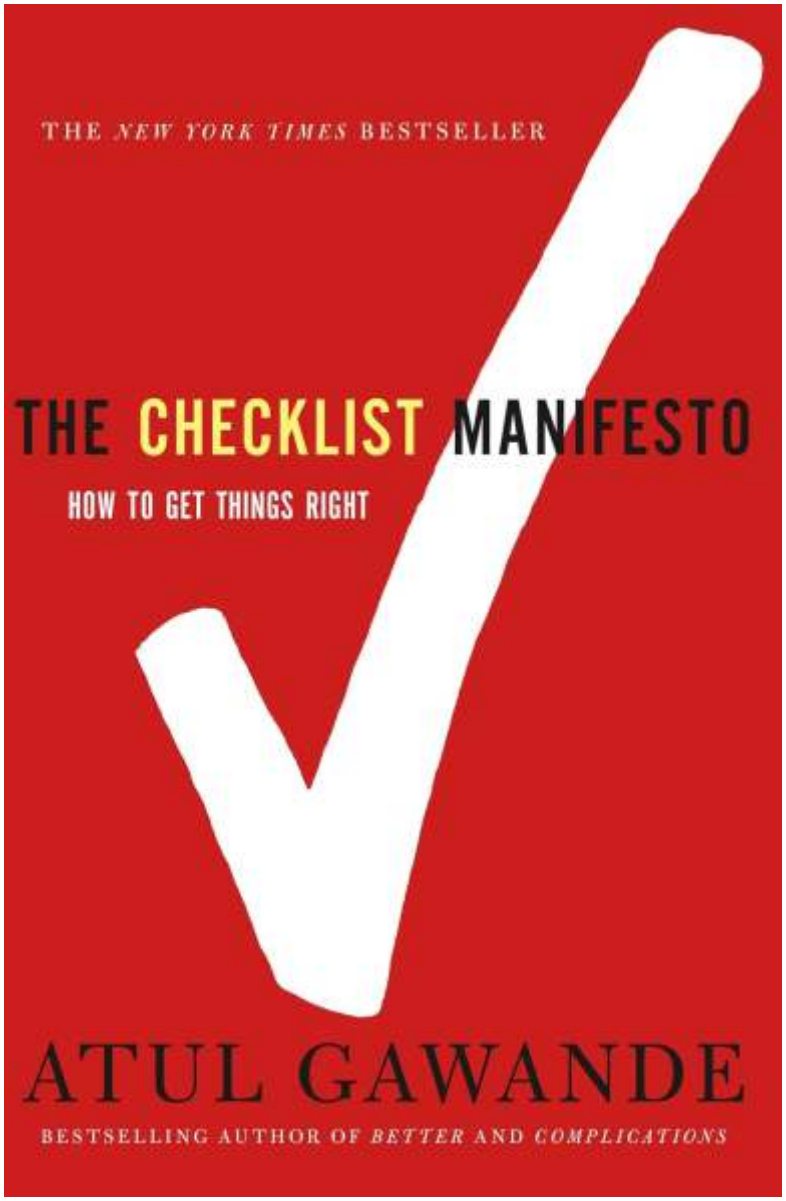
The title stems from the startling fact that only about 10% of the cells in our bodies are human; the rest are microbial. Collen uses this premise to challenge traditional views of health and disease, suggesting that modern ailments—from allergies and obesity to depression and autoimmune conditions—may stem in part from a disrupted microbiome, often due to overuse of antibiotics, cesarean deliveries, and sanitized lifestyles.

The book strikes a balance between academic rigor and popular science, making complex subjects like gut-brain communication, immune regulation, and microbial diversity engaging and easy to understand. Her arguments are backed by current research and enriched with anecdotes and interviews with scientists and patients, though at times she veers into speculative territory, particularly when discussing the future potential of microbiome-based therapies.

What distinguishes 10% Human is its interdisciplinary approach. It integrates microbiology, immunology, psychology, and evolutionary theory, encouraging readers to rethink the boundaries of "self." It does not present microbes as universally benevolent, but rather emphasizes the importance of microbial balance—an ecological perspective that resonates in today's age of chronic disease and overmedicalization.

In conclusion, 10% Human is an insightful and thought-provoking book that challenges readers to consider themselves not as solitary organisms but as complex ecosystems. It is a compelling read for anyone interested in how redefining our relationship with microbes could transform health and medicine.

READER'S CORNER



In *The Checklist Manifesto:* How to Get Things Right, Atul Gawande, a practicing surgeon and writer, delivers a compelling exploration of how a simple tool—the checklist—can vastly improve performance and reduce errors across a wide range of disciplines. Drawing on examples from medicine, aviation, construction, and finance, Gawande builds a persuasive case that even the most skilled professionals are vulnerable to failure not because of ignorance but because of the complexity and sheer volume of information they must manage. The central thesis of the book is that checklists help mitigate human fallibility by promoting discipline, consistency, and communication.

Gawande writes with clarity and humility, grounding his argument in real-world anecdotes and data. He recounts how the implementation of a basic surgical checklist, developed in collaboration with the World Health Organization, led to dramatic reductions in complications and mortality. These outcomes underscore the power of systematic thinking in environments where lives are on the line. Yet, what makes *The Checklist Manifesto* particularly relevant to a broader audience is its applicability beyond healthcare. Gawande examines how pilots use pre-flight checklists to ensure safety, how building engineers use them to coordinate complex projects, and how investors like those at Berkshire Hathaway employ them to manage risk.

One of the strengths of the book lies in Gawande's ability to balance narrative and analysis. He does not romanticize the checklist as a cure-all but presents it as a pragmatic response to modern complexity. He also addresses cultural resistance to checklists, especially among experts who fear that such tools undermine their autonomy or judgment. However, Gawande counters this by arguing that expertise and checklists are not mutually exclusive—in fact, when used correctly, they enhance one another.

Overall, *The Checklist Manifesto* is a thought-provoking and accessible work that challenges readers to rethink the nature of expertise and success. It is especially relevant for students, professionals, and leaders in any field where precision and reliability matter. Gawande's message is both simple and transformative: sometimes, the key to doing things right is not knowing more but making sure we remember what we already know.

SNEH hospital
ASSURING BETTER HEALTH
AN ISO 9001 : 2008 CERTIFIED HOSPITAL

SNEH
HOSPITAL PVT. LTD.

We are proud to share that **Sneh Hospital Pvt. Ltd.** has been honoured with the title of **"Gujarat's Most Trusted & Fastest Growing IVF Chain (Fertility Centres)."** This prestigious recognition was presented by the **Honourable Governor of Gujarat, Shri Acharya Dewrat ji,** at the esteemed **Pride of Gujarat Awards ceremony.** The award was received by Our Director, **Dr. Nisarg Dharaiya,** on behalf of the entire Sneh IVF team.

With consistently high success rates, advanced technologies & affordable care, **Sneh IVF** continues to bring **hope, happiness and parenthood** to thousands of families.

With multiple centres across **Gujarat & Rajasthan** and a legacy of high success rates & thousands of happy families, we continue to bring hope to every couple dreaming of **parenthood.**

SNEH IVF EXPERT TEAM

DR NISARG DHARAIYA (Chairman & Director, IVF Specialist)

Dr. Ushma Patel | Dr. Kanthi Bansal | Dr. Shetal Deshmukh | Dr. Dipa Patel
Dr. Krunal Modi | Dr. Kushal Shah | Dr. Ami Patel | Dr. Kajal Jajal | Dr. Rushi Patel | Dr. Tejal Shah

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Sneh Hospital, Hateshwaar Circle to Seven day school road. Maninagar.	3rd floor Sanjanand Palace, Above Gopi Dining Hall, Prahladnagar.	2nd Floor, Shree Vishnudhora Gardens, Jaguar Showroom Road, Jugotpur, Gota.	1st Floor, Turquoise-3, Nr. Urban Health Center, Gala Gymkhana Road, Bopal, Ahmedabad-58.	6th Floor, Ishaan Building, Above Citroen Car Show Room, Opp. Reliance Mega Mall, Old Padra Road, Vadodara-40.

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