

The “Fear Factor” for Surgical Masks and Face Shields, as Perceived by Children and Their Parents

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WHAT’S KNOWN ON THIS SUBJECT: Very little is known about the fear factor regarding face shields or surgical masks. Face shields are rarely used at our institution, and surgical masks are often not worn to avoid frightening children.



WHAT THIS STUDY ADDS: Parents poorly predicted what their children would prefer (face shields versus surgical masks). Most children do not find face shields or surgical masks frightening, but they prefer physicians in clear plastic face shields because they can see the physicians’ faces.

abstract

OBJECTIVE: The goal was to determine whether young children and their parents prefer physicians wearing clear face shields or surgical masks.

METHODS: Eighty children (4–10 years of age) and their guardians were recruited from a pediatric emergency department. A survey and color photographs of the same male and female physicians wearing face shields and surgical masks were distributed. The parents were asked to decide which set of physicians they would prefer to care for their children and with which set of physicians they thought their children would be most comfortable. The children then were asked to decide which set of physicians they would prefer to take care of them and why. The children also were asked whether they found any of the physicians frightening and, if so, why.

RESULTS: Fifty-one percent of parents preferred the pictures of physicians wearing face shields, and 62% thought that their children would choose the physicians in the face shields because their faces were visible and therefore less frightening. However, 59% of children stated that either set of physicians would be fine and neither was frightening; if given a choice, 49% would choose physicians in face shields.

CONCLUSIONS: Physicians and parents have a perception that surgical masks are frightening to all children. Our study has shown that this perception is not completely true. Face shields may be a better choice, however, because both parents and children would prefer this option. *Pediatrics* 2009;124:e777–e781

In pediatrics, especially in the emergency department, physicians must develop a comfortable relationship with both parents and children in a short period of time. Initial perceptions of physicians on the basis of their attire, white coat, facial expressions, and/or body language can affect the level of comfort.¹⁻³ How is a physician in a surgical mask or face shield perceived? Infection control guidelines recommend that health care workers protect themselves from large infectious droplets or splashes of blood or body fluids by wearing surgical masks and eye protection or face shields.⁴ In our emergency department, surgical masks are used far more commonly than clear plastic face shields for this purpose. However, we have observed pediatricians putting themselves at risk and choosing not to use surgical masks, thinking that children will be less fearful of them. To our knowledge, there is no evidence to support this assumption, because there have been no studies assessing the “fear factor” for surgical masks versus face shields in the pediatric setting. The objective of this study was to determine whether young children and their parents prefer physicians wearing a clear face shield or a surgical mask.

METHODS

This cross-sectional survey was conducted in the emergency department of Stollery Children’s Hospital (Edmonton, Canada). This is a tertiary care, pediatric facility with ~24 000 child visits each year. Children and their guardians were recruited in the waiting room of the emergency department during a 2-month period (July and August 2005). To be eligible, children needed to be between the ages of 4 and 10 and accompanied by their parents or legal guardians.⁵ Children who required immediate medical attention were excluded. After informed parental consent was obtained, the

For the parent or guardian:

Your Sex: Male Female
 Your Age _____
 Your Education: high school degree
 university degree
 postgraduate degree

1. From the attached pictures, which doctors would you like the **most** to care for your child in the Emergency Department?
 Picture set A Picture set B either neither
2. Why did you choose these doctors?
3. Which doctors do you think your child would be the **most** comfortable with?
 Picture set A Picture set B either neither
4. Why did you choose these doctors?

For your child:

After filling in your child’s sex and age, please ask them the following questions and get them to point to the pictures:

Your child’s sex: Male Female
 Your child’s age _____

1. Which doctors in the pictures would you **like** to take care of you?
 Picture set A Picture set B either neither
2. Why did you choose these doctors?
3. Do any of these doctors in the pictures look scary?
 Picture set A Picture set B either neither
4. Why did you choose these doctors?

FIGURE 1

Survey document distributed to parents and children.

children and their guardians were given a 1-page, 13-item survey (Fig 1) and color photographs of the same female and male physicians wearing surgical masks (Fig 2) or clear plastic face shields (Fig 3). After writing down their answers to demographic questions, the parents examined the photographs and decided which set of physicians they would prefer to care for their children and with which set of physicians they thought their children would be most comfortable. Parents wrote down their answers without communicating with their children (to avoid biasing their children) and then administered the survey to their children. The parents asked their children to look at the photographs and to decide which set of physicians they would prefer to take care of them, and why. The children also were asked

whether they found any of the physicians frightening and, if so, why. Parents were asked not to influence intentionally the children’s decisions. No identifying data were on the survey, and parents were instructed to hand the survey to the ward clerk with the other paperwork, to avoid any appearance of biasing their medical care.

Answers to the survey were entered into a database and analyzed by using Stata (Stata, College Station, TX). For categorical variables, χ^2 analysis was used for data evaluation. *P* values of <.05 were accepted as statistically significant. A post hoc analysis showed that a sample size of 80 yielded a power of >90% for *P* < .05. This study was approved by the University of Alberta Health Research Ethics Board.



FIGURE 2
Picture set A distributed to parents and children: physicians wearing surgical masks.

RESULTS

Eighty surveys from parent/child pairs were completed; no refusals were documented. The median age of the parents was 37 years (range: 24–60 years), and 79% of the parents (63 of 80 parents) were female. Completed education levels were as follows: high school degree, 38% (30 of 80 parents); university degree, 38% (30 of 80 parents); postgradu-

ate degree, 14% (11 of 80 parents); did not answer, 10% (8 of 80 parents). The median age of the children was 7.3 years (range: 4–10 years), and 53% of the children (42 of 80 children) were female.

Results from the parents' section of the survey showed that the majority of parents chose the physicians wearing face shields as the ones they would prefer to take care of their children; 51% (41 of 80

parents) chose the face shields, 24% (19 of 80 parents) chose the surgical masks, and 25% (20 of 80 parents) had no preference. The reasons for the preference for face shields were as follows: 41% of parents (17 of 41 parents who chose face shields) indicated that they could see the physicians' faces, 13% (5 of 41 parents who chose face shields) thought this was normal attire, 8% (3 of 41 parents who chose face shields) thought it was safer, 19% (8 of 41 parents who chose face shields) had various other reasons, and 20% (8 of 41 parents who chose face shields) did not give a reason. When asked with whom they thought their children would be more comfortable, most parents chose the pictures of the physicians in the face shields; 62% (50 of 80 parents) chose the face shields, 28% (22 of 80 parents) chose the surgical masks, 9% (7 of 80 parents) had no preference, and 1 did not want either. The reasons for the preference for face shields were as follows: 50% of parents (25 of 50 parents who chose face shields for their children) indicated that they could see the physicians' faces, 6% (3 of 50 parents who chose face shields for their children) thought this was normal attire, 20% (10 of 50 parents who chose face shields for their children) had other reasons, and 24% (12 of 50 parents who chose face shields for their children) did not respond.

Results from the children's section of the survey showed that 49% of children (39 of 80 children) chose the physicians in the face shields and 39% (31 of 80 children) chose the physicians in the surgical masks as the ones they would prefer to take care of them. Nine percent (7 of 80 children) had no preference, and 2 did not want either. The reasons for the preference for face shields were as follows: 28% of children (11 of 39 children who chose face shields) indicated that "they could see their faces," 8% (3 of 39 children who chose face shields) indicated that



FIGURE 3
Picture set B distributed to parents and children: physicians wearing clear plastic face shields.

“they were not scary,” 8% (3 of 39 children who chose face shields) noted safety reasons, 31% (12 of 39 children who chose face shields) had other reasons, and 24% (10 of 39 children who chose face shields) provided no reason.

Fifty-nine percent of the children (47 of 80 children) stated that neither the physicians in the surgical masks nor

the physicians in the face shields were frightening. Twenty-three percent (18 of 80 children) said that the physicians in the surgical masks were more frightening, and 12 of those 18 children stated that it was because they could not fully see the faces of the physicians. Eighteen percent (14 of 80 children) said that the physicians in the face shields were more frightening.

When the overall distributions of the pictures of physicians chosen by parent/child pairs were examined, the results showed a significant relationship ($P < .0001$), with both parents and children choosing the physicians in the face shields.

The parents thought that their children would be more comfortable with physicians wearing face shields, but the children thought that physicians wearing either type of covering would be fine; neither was frightening ($P < .0001$).

In examinations of any type of facial covering, 98% of parents (78 of 80 parents) thought that their children would be uncomfortable with physicians in face shields or face masks, but 46% of children (36 of 80 children) were frightened by physicians in face shields or face masks.

DISCUSSION

There is a mistaken belief among adults that physicians wearing personal protective equipment such as surgical masks are frightening. In our study, parents thought that their children would be more comfortable with physicians in face shields, because the children could see the physicians' faces. When given the choice, 49% of the 4- to 10-year-old children in our survey chose pictures of physicians with face shields, rather than surgical masks; however, 59% of children did not find surgical masks or face shields frightening. Similar results were seen when parents and children were questioned about their perceptions of physicians in white coats. The children did not dislike white coats, and they associated competence and concern with more-formally dressed physicians. Parents preferred casually dressed physicians without white coats and poorly predicted which outfits their children would prefer.⁶ In a US study, parents preferred more-formal dress, whereas their children had no clear preference.²

A third study found that 35% of parents but 54% of children preferred physicians in white coats, which shows that it is likely a misconception that children are afraid of white coats.⁷

Where does the perception that surgical masks are frightening originate? Emma Plank, one of the first child life specialists, stated that some children feared that hospital personnel wearing surgical masks were “villains” with “evil intent.”⁸ However, many children today have seen physicians with surgical masks on television or have experienced surgery or previous hospital visits during which they have seen physicians and other health care workers wearing masks or face shields.⁹ This may account for some of the comments in our study, in which 8% of the children thought

that surgical masks or face shields were normal.

This study has several limitations. We did not examine whether the children had previous experience with physicians in face shields or masks, which might have affected their comfort level. The photographs were static and did not take into account other factors such as actual interactions, in which facial expressions, smells, body language, length of interaction, speed, and quality of voice play roles in children’s and parents’ perceptions of physicians.¹⁰ Although actual interactions might yield different results, our study shows that pictures of physicians in equipment such as surgical masks or face shields are not frightening to young children. Future research might include examinations of more-dynamic interactions with

physicians wearing surgical masks or face shields. It also would be wise to examine physician acceptability of face shields and the economic differences between the two types of products.

CONCLUSIONS

Physicians and parents have a perception that surgical masks are frightening to all children. Our study has shown that this perception is not completely true; most of the children found neither surgical masks nor face shields frightening. Physicians must think about their own safety, and they can wear surgical masks without the worry of engendering fear in most of their young patients. Face shields may be a better option, however, because both parents and children would prefer this option if given a choice.

REFERENCES

1. Taylor PG. Does dress influence how parents first perceive housestaff competence? *Am J Dis Child*. 1987;141(4):426–428
2. Marino RV, Rosenfeld W, Narula P, Karakurum M. Impact of pediatrician’s attire on children and parents. *J Dev Behav Pediatr*. 1991;12(2):98–101
3. Bischof RO. White coats in the care of children. *Lancet*. 1995;345(8952):777–778
4. Centers for Disease Control and Prevention, Hospital Infection Control Practices Advisory Committee. Guideline for isolation precautions in hospitals, part II: recommendations for isolation precautions in hospitals. *Am J Infect Control*. 1996;24(1):32–52
5. Matsui D, Cho M, Rieder MJ. Physician’s attire as perceived by young children and their parents: the myth of the white coat syndrome. *Pediatr Emerg Care*. 1998;14(3):198–201
6. Barrett TG, Booth IW. Sartorial eloquence: does it exist in the pediatrician-patient relationship? *BMJ*. 1994;309(6970):1710–1712
7. McCarthy JJ, McCarthy MC, Eilert RE. Children’s and parents’ visual perception of physicians. *Clin Pediatr (Phila)*. 1999;38(3):145–152
8. Plank E. *Working With Children in Hospitals: A Guide for the Professional Team*. 2nd ed. Chicago, IL: Year Book; 1971
9. Stewart EJ, Algren C, Arnold S. Preparing children for a surgical experience. *Today’s OR Nurse*. 1994;16(2):9–14
10. Gonzalez Del Rey JA, Paul RI. Preferences of parents for pediatric emergency physician’s attire. *Pediatr Emerg Care*. 1995;11(6):361–364

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